J.T. WING AND COMPANY, LIMITED

GENERAL CATALOGUE NO. 38

WINDSOR - CHATHAM

J. T. WING and COMPANY
LIMITED

Established 1886

FACTORY SUPPLIES
IRON AND STEEL
CONTRACTORS' EQUIPMENT
PLUMBING AND HEATING SUPPLIES
BUILDERS' HARDWARE
PREPARED ROOFING AND SHINGLES
PAINTS

CATALOGUE
No. 38

TWO CENTRAL POINTS

WINDSOR, ONTARIO
375-388 Pitt Street East
Telephone 3-2431

CHATHAM, ONTARIO
Cor. Wellington and William Streets
Telephone 296

TO OUR CUSTOMERS

IN presenting this, our Catalogue No. 38, we have endeavoured to list and give details of the most important items of Factory Supplies, Iron and Steel, Contractors' Equipment, Plumbing and Heating Supplies, Builders' Hardware, Prepared Roofing, Asphalt Shingles, and Paints.

Much thought has been given to the preparation of this book and every possible care has been taken to make it accurate and reliable. Should you fail to find items that you seek listed in this catalogue, or should information beyond that given be required, please telephone or write us, as we can furnish promptly many articles not illustrated or described. Special catalogues and literature covering many of the items listed in this Book will be gladly furnished on request.

This book represents the accumulated knowledge that has come from 52 years of extensive experience and service. Our organization is prepared to give a unique and valuable service on everything in the line of Factory Supplies, Iron and Steel, Contractors' Equipment, Plumbing and Heating Supplies, Builders' Hardware, Prepared Roofing, Asphalt Shingles, and Paints.

GENERAL INFORMATION

PRICES

List prices are shown in this catalogue for comparative purposes only and are subject to varying discounts depending upon market conditions. Constant fluctuations in prices makes it inadvisable to issue discount sheets. We, at all times, will give our customers the lowest possible market prices, consistent with quality of materials.

All prices and quotations are for prompt acceptance, subject to market changes and fluctuations in rates of duty, exchange and taxes, if applicable. Clerical errors are subject to correction.

TERMS

Terms are 2% for payment on 10th of the month following date of purchase or net end of the month following date of purchase, on all materials not sold on a net 30 days basis. Goods sold on basis of net 30 days will be marked accordingly on invoice.

All orders, contracts, or special terms are subject to approval before being effective.

ORDERING

To facilitate the filling of your order, give complete information regarding material required—state page number, name of article, size and quantity. Insufficient information holds up many shipments, which might be made from stock. If order is not accompanied by shipping instructions, we shall use our own judgment in forwarding by quickest and cheapest route.

NEW ACCOUNTS

Those not known to us, or who have not established a credit rating with a Mercantile Agency, can avoid delay by accompanying the order with remittance or credit reference.

ERRORS

All claims for corrections or deductions must be made within 10 days after receipt of goods. Should you make an error let us know immediately and we will endeavor to correct your mistake. Should we make an error in executing your order, advise us without delay, that we may correct it. Orders cannot be cancelled without consent.

RESPONSIBILITY

Our responsibility ceases as soon as goods are delivered in good condition to Transportation Company.

All contracts and bills of sale made contingent upon strikes, accidents, delay of carriers, and other delays unavoidable or beyond our control.

PLUMBING AND HEATING SUPPLIES

In this catalogue we have not given complete information regarding plumbing and heating supplies. This merchandise is covered in separate catalogues which are available on request.

In Windsor we have the most modern and up-to-date plumbing and heating show room in Canada, and we invite you to visit our premises. It will be a pleasure to show and explain to you the new and modern fixtures. You will be under no obligation to purchase.

Our staff is made up of expert salesmen who are prepared to assist you in your plumbing, heating and air-conditioning requirements.

J. T. WING & COMPANY, LIMITED

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STANDARD MALLEABLE IRON FITTINGS

90° ELBOWS

STRAIGHT

Size In.	Price, Each Black	Galv.
1/8	$.10	$.14
1/4	.10	.14
3/8	.12	.16
1/2	.14	.18
3/4	.20	.26
1	.26	.34
1 1/4	.40	.52
1 1/2	.50	.66
2	.80	1.04
2 1/2	1.44	1.90
3	2.00	2.60
3 1/2	3.00	3.90
4	3.60	4.70
5	6.50	8.50
6	9.30	12.10

REDUCING

Size Inches	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.
1/4	$.12	$.16	1 1/2	$.56	$.72
3/8	.14	.18	2	.88	1.14
1/2	.16	.20	2 1/2	1.60	2.10
3/4	.22	.28	3	2.20	2.90
1	.28	.36	3 1/2	3.30	4.30
1 1/4	.44	.58	4	4.00	5.20

RIGHT AND LEFT

1/4	$.12	$.16	1	$.30	$.40
3/8	.14	.18	1 1/4	.46	.60
1/2	.16	.20	1 1/2	.58	.76
3/4	.24	.32	2	.92	1.20

45° ELBOWS

Size In.	Price, Each Black	Galv.
1/8	$.12	$.16
1/4	.12	.16
3/8	.14	.18
1/2	.18	.24
3/4	.24	.32
1	.32	.42
1 1/4	.48	.62
1 1/2	.60	.78
2	.96	1.24
2 1/2	1.72	2.20
3	2.40	3.10
3 1/2	3.60	4.70
4	4.40	5.70
5	7.80	10.20
6	11.20	14.60

90° STREET ELBOWS

STRAIGHT

Size In.	Price, Each Black	Galv.
1/8	$.12	$.16
1/4	.12	.16
3/8	.14	.18
1/2	.16	.20
3/4	.24	.32
1	.30	.40
1 1/4	.46	.60
1 1/2	.58	.76
2	.92	1.20
2 1/2	1.66	2.20
3	2.30	3.00
4	4.20	5.50

CROSS-OVERS

Size Inches	Price, Each Black	Galvanized
1/2	$.20	$.25
3/4	.30	.40
1	.45	.60

45° STREET ELBOWS

Size In.	Price, Each Black	Galv.
3/8	$.16	$.20
1/2	.20	.26
3/4	.28	.36
1	.36	.46
1 1/4	.56	.72
1 1/2	.70	.92
2	1.10	1.44

SIDE OUTLET ELBOWS

STRAIGHT

Size In.	Price, Each Black	Galv.
3/8	$.24	$.32
1/2	.28	.36
3/4	.40	.52
1	.52	.68
1 1/4	.80	1.04
1 1/2	1.00	1.30
2	1.60	2.10

REDUCING

Size In.	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.
3/8	$.28	$.36	1	$.56	$.72
1/2	.32	.42	1 1/4	.88	1.14
3/4	.44	.58	...	...	...

DROP ELBOWS

FEMALE

STRAIGHT

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
1/4	$.14	$.18	1/2	$.24	$.32
3/8	.16	.22	3/4	.36	.46

REDUCING

3/8	$.18	....	3/4	$.40	$.52

DROP TEES

FEMALE

STRAIGHT

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
3/8	$.20	$.26	3/4	$.44	$.56
1/2	$.30	$.40	...	...	...

REDUCING

3/8	$.22	....	3/4	$.48	$.62
1/2	.34	$.44	1	.64	...

STRAIGHT TEES

Size In.	Price, Each Black	Galv.
1/2	$.20	$.26
3/4	.26	.34
1	.34	.44
1 1/4	.52	.68
1 1/2	.66	.86
2	1.04	1.36
2 1/2	1.80	2.40
3	2.60	3.40
3 1/2	4.00	5.20
4	4.80	6.20
5	8.50	11.10
6	12.00	15.60

Size In.	Price, Each Black	Galv.
1/8	$.14	$.18
1/4	.14	.18
3/8	.16	.20
..	....	....

REDUCING TEES

Size In.	Price, Each Black	Galv.
1/4	$.16	$.20
3/8	.18	.24
1/2	.22	.28
3/4	.30	.40
1	.38	.50
1 1/4	.58	.76
1 1/2	.74	.96
2	1.14	1.50
2 1/2	2.00	2.60
3	2.90	3.80
3 1/2	4.40	5.70
4	5.30	6.90
5	$9.40	$12.20
6	13.20	17.20

FOUR-WAY TEES

Size In.	Price, Each Black	Galv.
3/8	$.32	$.42
1/2	.40	.52
3/4	.52	.68
1	.68	.88
1 1/4	1.04	1.36
1 1/2	1.32	1.72
2	2.10	2.70

SERVICE TEES

STRAIGHT

Size In.	Price, Each Black	Galv.
3/8	$.18	$.24
1/2	.24	.32
3/4	.30	.40
1	.40	.52
1 1/4	.60	.78
1 1/2	.76	1.00
2	1.20	1.56

SERVICE TEES

REDUCING

Size In.	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.
3/4	$.34	....	2	$1.32	$1.72
1	.44	$.58	2 1/2	2.30	....
1 1/4	.66	.86	3	3.30	....
1 1/2	.84	1.10	4	6.10	....

FLOOR FLANGES

Size	Black	Galv.	Size	Black	Galv.
1/4	$.08	$.10	1 1/4	$.42	$.56
3/8	.18	.22	1 1/2	.60	.76
1/2	.24	.30	2	.74	.94
3/4	.26	.32	2 1/2	1.26	1.54
1	.36	.46	3	1.60	2.00

STANDARD MALLEABLE IRON FITTINGS

45° Y BENDS
STRAIGHT

Size In.	Price, Each Black	Galv.
3/8	$.20	....
1/2	.28	$.36
3/4	.36	.46
1	.50	.66
1 1/4	.80	1.04
1 1/2	1.14	1.50
2	1.70	2.20
2 1/2	3.10	4.00
3	5.60	7.30
4	9.60	12.50

CROSSES
STRAIGHT

Size In.	Price, Each Black	Galv.
1/4	$.18	$.24
3/8	.22	.28
1/2	.26	.34
3/4	.36	.46
1	.46	.60
1 1/4	.70	.92
1 1/2	.88	1.14
2	1.40	1.80
2 1/2	2.50	3.30
3	3.50	4.60
3 1/2	5.30	6.90
4	6.30	8.20
5	11.40	14.80
6	16.30	21.20

REDUCING

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
1/2	$.28	$.36	2	1.54	2.00
3/4	.40	.52	2 1/2	2.80	3.70
1	.50	.66	3	3.90	5.10
1 1/4	.76	1.00	4	6.90	9.00
1 1/2	.96	1.24			

CAPS

Size In.	Price, Each Black	Galv.
1/8	$.06	$.08
1/4	.06	.08
3/8	.08	.10
1/2	.10	.14
3/4	.16	.20
1	.20	.26
1 1/4	.26	.34
1 1/2	.36	.46

Size In.	Price, Each Black	Galv.
2	$.50	$.66
2 1/2	.80	1.04
3	1.20	1.56
3 1/2	1.60	2.10
4	2.20	2.90
5	3.60	4.70
6	5.40	7.00

HEXAGON NIPPLES

Hexagon nipples are regularly furnished right and left hand. Right hand at special prices.

Size Inches	Black Price Each	Size Inches	Black Price Each	Size Inches	Black Price Each
1/4	$.20	1	$.30	2 1/2	$1.10
3/8	.20	1 1/4	.40	3	1.50
1/2	.20	1 1/2	.50	3 1/2	1.90
3/4	.25	2	.70	4	2.40

WASTE NUTS

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
1/4	$.06	$.08	1	$.12	$.16
3/8	.08	.10	1 1/4	.22	.28
1/2	.08	.10	1 1/2	.50	.66
3/4	.10	.14	2	.82	1.06

LOCKNUTS

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
1/8	$.04	$.06	1 1/2	$.20	$.26
1/4	.05	.07	2	.24	.32
3/8	.05	.07	2 1/2	.60	.78
1/2	.06	.08	3	.76	1.00
3/4	.08	.10	3 1/2	.86	1.12
1	.12	.16	4	.96	1.24
1 1/4	.16	.20	...	...	...

EXTENSION PIECES

Size Inches	Price, Each Black	Galv.
3/8	$.10	$.14
1/2	.14	.18
3/4	.22	.28
1	.32	.42
1 1/4	.36	.46
1 1/2	.46	.60
2	.66	.86

COUPLINGS

RIGHT HAND RIGHT AND LEFT

Size Inches	Price, Each Black	Galv.	Price, Each Black	Galv.
1/4	$.10	$.14	$.10	$.14
3/8	.10	.14	.10	.14
1/2	.12	.16	.12	.16
3/4	.18	.24	.18	.24
1	.24	.32	.24	.32
1 1/4	.32	.42	.32	.42
1 1/2	.42	.54	.42	.54
2	.68	.88	.68	.88
2 1/2	1.20	1.56	...	...
3	1.70	2.20	...	...
3 1/2	2.50	3.20	...	...
4	3.00	3.90	...	...

REDUCERS

Size Inches	Price, Each Black	Galv.	Size Inches	Price, Each Black	Galv.
1/4	$.10	$.14	1 1/2	$.36	$.46
3/8	.10	.14	2	.56	.72
1/2	.12	.16	2 1/2	1.00	1.30
3/4	.18	.24	3	1.50	2.00
1	.24	.32	3 1/2	2.20	2.90
1 1/4	.30	.40	4	2.80	3.70

RETURN BENDS

CLOSE PATTERN

Size Inches	Center to Center inches	Price, Each Right Hand Black	Galv.	Right and Left Black	Galv.
1/2	1	$.32	$.42	$.36	$.46
3/4	1 1/4	.36	.46	.42	.54
1	1 1/2	.48	.62	.56	.72
1 1/4	1 3/4	.72	.94	.84	1.10
1 1/2	2 3/16	.98	1.28	1.12	1.46
2	2 5/8	1.60	2.10	1.84	2.40

Close pattern return bends will not make up parallel coils, as the distance, center to center of two adjacent bends, is greater than the center to center of openings of a single bend.

OPEN PATTERN

Size Inches	Center to Center Inches	Price, Each Right Hand Black	Galv.	Right and Left Black	Galv.
1/2	1 1/2	$.38	$.50	$.44	$.58
3/4	2	.44	.58	.52	.68
1	2 1/2	.58	.76	.68	.88
1 1/4	3	.88	1.14	1.02	1.32
1 1/2	3 1/2	1.24	1.60	1.40	1.80
2	4	2.00	2.60	2.30	3.00
2 1/2	4 1/2	2.90	3.80	3.30	4.30
3	5	4.30	5.60	4.90	6.40

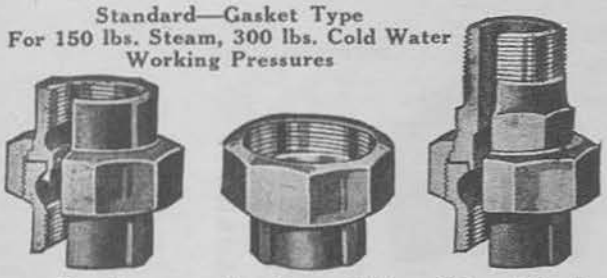
MEDIUM PATTERN

Size Inches	Center to Center Inches	Price, Each Right Hand Black	Galv.	Right and Left Black	Galv.
1/2	1 1/4	$.34	$.44	$.38	$.50
3/4	1 1/2	.40	.52	.46	.60
1	1 7/8	.52	.68	.60	.78
1 1/4	2 1/4	.80	1.04	.92	1.20
1 1/2	2 1/2	1.10	1.44	1.26	1.64
2	3	1.76	2.30	2.00	2.60

STANDARD MALLEABLE IRON FITTINGS

Malleable Iron Unions

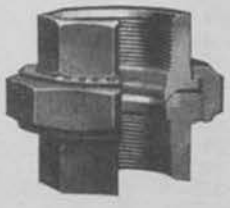
Standard—Gasket Type
For 150 lbs. Steam, 300 lbs. Cold Water Working Pressures



Female **Female two-third** **Male and Female**

Size Inches	Price Each — Female Black	Female Galv.	Two Third Black	Two Third Galv.	Male and Female Black	Male and Female Galv.
1/8	.18	.27	....	....	....	....
1/4	.18	.27	.12	.18	.23	.32
3/8	.20	.30	.14	.20	.25	.35
1/2	.22	.33	.16	.22	.28	.39
3/4	.27	.40	.19	.25	.33	.46
1	.33	.50	.22	.35	.40	.57
1 1/4	.46	.70	.30	.50	.57	.81
1 1/2	.58	.90	.40	.60	.72	1.04
2	.75	1.15	.50	.75	.95	1.35

IMICO UNIONS



Malleable Iron
Brass-to-Iron Seat
250 Lbs. Steam Pressure

Size Inches	Price, Each Plain	Galvanized	Size Inches	Price, Each Plain	Galvanized
1/8	$.30	$.45	1 1/4	$1.20	$1.80
1/4	.30	.45	1 1/2	1.60	2.40
3/8	.40	.60	2	2.00	3.00
1/2	.50	.75	2 1/2	3.20	4.80
3/4	.60	.90	3	4.80	7.20
1	.80	1.20	...	....	....

DART SCREWED UNION

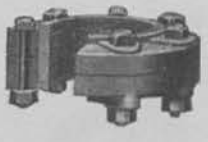
Dart Union
Malleable Iron
Two Bronze Seats
300 Lbs. Steam Pressure

Size		Size		Size	
1/8"	$ 0.30	1"	$ 0.80	2 1/2"	$ 3.20
1/4"	.30	1 1/4"	1.20	3"	4.80
3/8"	.40	1 1/2"	1.60	3 1/2"	7.20
1/2"	.50	2"	2.00	4"	10.80
3/4"	.60				

For Galvanized, add 30%

STANDARD FLANGE UNIONS

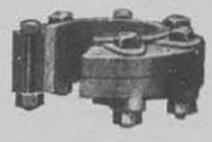
For Working Pressures up to 125 Pounds



Size In.	Price, Each Black	Galvanized	Size In.	Price, Each Black	Galvanized.
1/2	$.40	$.80	4	$2.10	$4.20
3/4	.46	.92	5	3.15	6.30
1	.52	1.04	6	3.95	7.90
1 1/4	.64	1.28	8	7.00	14.00
1 1/2	.78	1.56	10	11.50	23.00
2	1.00	2.00	12	16.00	32.00
2 1/2	1.25	2.50	14	28.00	56.00
3	1.50	3.00	15	35.00	70.00
3 1/2	1.80	3.60	16	60.00	120.00

EXTRA HEAVY FLANGE UNIONS

For Working Pressures up to 250 Pounds



Size Inches	Price Each	Size Inches	Price Each
1/2	$.70	3	$2.25
3/4	.70	3 1/2	2.70
1	.80	4	3.15
1 1/4	1.00	5	4.75
1 1/2	1.15	6	6.00
2	1.50	8	10.50
2 1/2	1.90		

UNION ELBOWS

MALE

Size Inches	Price, Each Black	Galvanized
1/4	.43	.65
3/8	.45	.70
1/2	.48	.72
3/4	.62	.93
1	.72	1.08
1 1/4	1.05	1.60
1 1/2	1.20	1.80
2	1.80	2.70
2 1/2	3.30	4.95

UNION ELBOWS

FEMALE

Size Inches	Price, Each Black	Galvanized
1/4	.38	.57
3/8	.40	.60
1/2	.42	.63
3/4	.54	.81
1	.63	.95
1 1/4	.90	1.35
1 1/2	1.05	1.58
2	1.55	2.35
2 1/2	2.85	4.30

UNION TEES

MALE

Size Inches	Price, Each Black	Galvanized
1/4	.48	.72
3/8	.50	.75
1/2	.52	.78
3/4	.65	1.00
1	.80	1.20
1 1/4	1.10	1.65
1 1/2	1.30	1.95
2	1.95	2.95
2 1/2	3.70	5.55

UNION TEES

FEMALE

Size Inches	Price, Each Black	Galvanized
1/4	.40	.60
3/8	.43	.65
1/2	.45	.68
3/4	.57	.86
1	.70	1 05
1 1/4	.95	1.45
1 1/2	1.15	1.75
2	1.70	2.55
2 1/2	3.20	4.80

Straight Cast Iron Screwed Elbows

Right Hand

Right and Left

Size Inches	Price Each — Right Hand Black	Right Hand Galv.	Right and Left Blk.	Size Inches	Price, Each — Right Hand Black	Right Hand Galv.
1/4	$.05	$.10	$.06	3 1/2	$1.05	$2.10
3/8	.05	.10	.06	4	1.20	2.40
1/2	.06	.12	.07	4 1/2	1.75	3.50
3/4	.08	.16	.09	5	2.00	4 00
1	.10 1/2	.21	.12	6	2.75	5.50
1 1/4	.16	.32	.18	7	4.70	9.40
1 1/2	.20	.40	.23	8	6.75	13.50
2	.28	.56	.32	9	9.00	18.00
2 1/2	.50	1.00	.60	10	13.50	27.00
3	.75	1.50	.85	12	20.00	40.00

Reducing Cast Iron Screwed Elbows

Size In.	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.
3/8	$.06	....	4	$1.40	$2.80
1/2	.07	$.14	4 1/2	2.00	4 00
3/4	.09	.18	5	2.30	4.60
1	.12	.24	6	3.15	6 30
1 1/4	.18	.36	7	5.40	10.80
1 1/2	.23	.46	8	7.75	15.50
2	.32	.64	9	10.50	21.00
2 1/2	.60	1.20	10	15.50	31 00
3	.85	1.70	12	23.00	46 00
3 1/2	1 20	2 40	..	....	...

45° Cast Iron Screwed Elbows

Size In.	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.	Size In.	Price, Each Black	Galv.
1/4	$.06	$.12	2	$.34	$.68	6	$3.45	$6.90
3/8	.06	.12	2 1/2	.60	1.20	7	5.90	11.80
1/2	.07	.14	3	.90	1.80	8	8.50	17.00
3/4	.10	.20	3 1/2	1.25	2.50	9	11.25	22.50
1	.12	.24	4	1.45	2.90	10	17.00	34.00
1 1/4	.19	.38	4 1/2	2.20	4.40	12	25.00	50.00
1 1/2	.24	.48	5	2.50	5.00	..	.....	.....

RADIATOR BUSHINGS

Standard

Eccentric

Size In.	Price, Each Std.	Ecc.
1 1/4 x 1/2	...	$.22
1 1/4 x 3/4	...	.22
1 1/2 x 1/2	$.14	.25
1 1/2 x 3/4	.14	.25
1 1/2 x 1	.14	.25
1 1/2 x 1 1/4	.14	...

Size In.	Price, Each Std.	Ecc.
2 x 1/2	...	$.27
2 x 3/4	$.21	.27
2 x 1	.21	.27
2 x 1 1/4	.21	.27
2 x 1 1/2	.21	...
.....	...	...

Cast Iron Screwed Fittings

Straight Tees

Size In.	Each Black	Galv.	Size In.	Each Black	Galv.
1/4	$.08	$.16	3 1/2	$1.50	$3.00
3/8	.08	.16	4	1.75	3.50
1/2	.09	.18	4 1/2	2.55	5.10
3/4	.12	.24	5	3.00	6.00
1	.15	.30	6	4.00	8.00
1 1/4	.23	.46	7	6.80	13.60
1 1/2	.29	.58	8	9.75	19.50
2	.41	.82	9	13.00	26.00
2 1/2	.73	1.46	10	19.50	39.00
3	1.10	2.20	12	29.00	58.00

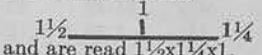
Reducing Tees

on Run

on Outlet

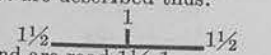
Size In.	Each Black	Galv.	Size In.	Each Black	Galv.
3/8	$.09	$.18	4	$2.00	$4.00
1/2	.10	.20	4 1/2	2.95	5.90
3/4	.14	.28	5	3.50	7.00
1	.17	.34	6	4.60	9.20
1 1/4	.27	.54	7	7.80	15.60
1 1/2	.33	.66	8	11.25	22.50
2	.47	.94	9	15.00	30.00
2 1/2	.83	1.66	10	22.50	45.00
3	1.25	2.50	12	33.50	67.00
3 1/2	1.75	3.50	....	.....	.....

Tees reducing on the run are described thus:



and are read 1 1/2x1 1/4x1.

Tees reducing on the outlet are described thus:



and are read 1 1/2x1.

Straight Crosses

Size In.	Each Black	Galv.	Size In.	Each Black	Galv.
1/2	$.16	$.32	4	$3.15	$6.30
3/4	.22	.44	4 1/2	4.60	9.20
1	.27	.54	5	5.50	11.00
1 1/4	.42	.84	6	7.25	14.50
1 1/2	.53	1.06	7	12.25	24.50
2	.75	1.50	8	17.50	35.00
2 1/2	1.30	2.60	9	23.50	47.00
3	2.00	4.00	10	35.00	70.00
3 1/2	2.70	5.40	12	52.50	105.00

Reducing Crosses

Size In.	Each Black	Galv.	Size In.	Each Black	Galv.
1/2	$.18	$.36	4	$3.50	$7.00
3/4	.25	.50	4 1/2	5.10	10.20
1	.30	.60	5	6.00	12.00
1 1/4	.46	.92	6	8.00	16.00
1 1/2	.60	1.20	7	13.50	27.00
2	.83	1.66	8	19.25	38.50
2 1/2	1.45	2.90	9	26.00	52.00
3	2.20	4.40	10	38.50	77.00
3 1/2	3.00	6.00	12	58.00	116.00

Y Branches

Size In.	Each Black	Galv.	Size In.	Each Black	Galv.
1/2	$.20	$.40	4	$4.00	$8.00
3/4	.28	.56	4 1/2	5.90	11.80
1	.34	.68	5	7.00	14.00
1 1/4	.54	1.08	6	9.20	18.40
1 1/2	.66	1.32	7	15.60	31.20
2	.94	1.88	8	22.50	45.00
2 1/2	1.66	3.32	10	45.00	90.00
3	2.50	5.00	12	67.00	134.00
3 1/2	3.50	7.00	....	.....	.....

Cast Iron Close Pattern Return Bends

Close pattern return bends will not make up parallel coils, as the distance, center to center, of two adjacent bends is greater than the center to center of openings of a single bend.

Size Inches	Each — Right Hand Black	Right Hand Galv.	R and L. Black	Left Hand Black	Center to Center, In.
½	$.18	$.36	$.21	$.21	1¼
¾	.20	.40	.23	.23	1½
1	.22	.44	.26	.26	1¾
1¼	.28	.56	.33	.33	2¼
1½	.40	.80	.46	.46	2½
2	.57	1.14	.66	.66	3¼
2½	1.20	2.40	1.40	1.40	3¾
3	1.70	3.40	1.95	1.95	4¼
4	5.00	10.00	5.25	5.25	6

Cast Iron Open Pattern Return Bends

Size In.	Center to Center In.	Price, Each — Right Hand Black	Right Hand Galv.	Right and Left Black	Size In.	Center to Center In.	Price, Each — Right Hand Black	Right Hand Galv.	Right and Left Black
¾	1⅞	$.26	$.52	$.30	2	4½	$.80	$1.60	$.92
1	2⅜	.30	.60	.35	2½	5½	1.35	2.70	1.55
1¼	3	.40	.80	.46	3	6½	2.20	4.40	2.50
1½	3½	.55	1.10	.64	4	7½	6.50	10.00	....

Faced Bushings

Faced bushings, 1½-inch size and smaller are made of malleable iron.

Faced bushings 2-inch to 5-inch having one reduction, are made of malleable iron. All other sizes are made of cast iron.

Size Inches	Plain Each	Galvanized Each	Size Inches	Plain Each	Galvanized Each
⅜	$.08	$.12	2½	$.48	$.72
½	.09	.14	3	.70	1.05
¾	.11	.17	3½	1.20	1.80
1	.13	.20	4	1.50	2.25
1¼	.17	.25	5	2.60	3.90
1½	.22	.33	6	3.75	5.60
2	.32	.48		....	....

Cast Iron Eccentric Reducing Couplings

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
1¼	$.55	3	$2.40	5	$6.00
1½	.72	3½	3.00	6	8.00
2	1.00	4	4.00	7	9.00
2½	1.50	4½	5.00	8	11.00

Cast Iron Floor Flanges

Not Faced, Countersunk Holes for Screws

Size, In.	Each	Size, In.	Each
⅜x3	$.10	1¼x4	$.16
½x3½	.15	1½x4½	.22
¾x3½	.15	2 x5½	.35
1 x4	.16	....	...

Galvanized take double list.

Cast Iron Screwed Fittings

Reducers

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
4½	$1.85	$3.70	8	$6.75	$13.50
5	2.00	4.00	9	8.35	16.70
6	2.70	5.40	10	10.00	20.00
7	5.35	10.70	12	15.00	30.00

Caps

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
4	$.87	$1.74	8	$2.85	$5.70
4½	1.05	2.10	9	4.75	9.50
5	1.20	2.40	10	5.50	11.00
6	1.55	3.10	12	7.00	14.00
7	2.50	5.00	..	....	.....

Bushings

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅜	$.04	$.08	4	$.50	$1.00
½	.04	.08	4½	.75	1.50
¾	.05	.10	5	.93	1.85
1	.06	.12	6	1.25	2.50
1¼	.07	.14	7	1.87	3.75
1½	.09	.18	8	2.75	5.50
2	.14	.28	9	3.25	6.50
2½	.21	.42	10	3.75	7.50
3	.30	.60	12	5.00	10.00
3½	.40	.80	....	....	.....

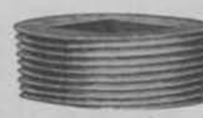
Plugs

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.02	$.04	3½	$.38	$.76
¼	.02	.04	4	.42	.84
⅜	.02	.04	4½	.65	1.30
½	.02	.04	5	.88	1.75
¾	.03	.06	6	1.20	2.40
1	.04	.08	7	1.85	3.70
1¼	.05	.10	8	2.75	5.50
1½	.07	.14	9	3.25	6.50
2	.10	.20	10	3.75	7.50
2½	.18	.36	12	5.00	10.00
3	.25	.50	....	....	.....

Solid Plugs

Size In.	Black Each	Size In.	Black Each	Size In.	Black Each	Size In.	Black Each
¼	$.04	1¼	$.09	3½	$.57	*8	$4.15
⅜	.04	1½	.11	4	.63	*10	5.75
½	.04	2	.15	4½	1.00	*12	7.50
¾	.06	2½	.27	5	1.35	*These sizes are the bar type.	
1	.08	3	.38	*6	1.80		

Countersunk Plugs



Size In.	Black Each	Size In.	Black Each	Size In.	Black Each
¼	$.04	1¼	$.09	3½	$.92
⅜	.04	1½	.11	4	1.10
½	.04	2	.15	5	2.00
¾	.06	2½	.30	6	3.50
1	.08	3	.40	...	....

Locknuts

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
2½	$.27	$.54	6	$1.30	$2.60
3	.34	.68	7	1.70	3.40
3½	.47	.94	8	2.35	4.70
4	.64	1.28	9	2.70	5.40
4½	.85	1.70	10	3.00	6.00
5	.90	1.80	12	4.00	8.00

Cast Iron Branch Tees

No. 1

No. 2

No. 3

1-Inch Branches—Center to Center, 2½ Inches

No. of Branches	Price, Each — Size of Run, Inches: 1	1¼	1½	2	2½	3	3½	4
2	$.90	$.90	$1.00	$1.15	$1.75	....	....	....
3	1.05	1.05·	1.15	1.35	2.05	....	....	....
4	1.15	1.15	1.30	1.60	2.40	$3.95	....	....
5	1.35	1.35	1.45	1.85	2.75	4.40	....	....
6	1.60	1.60	1.75	2.10	3.10	4.85	....	....
7	1.90	1.90	2.20	2.45	3.50	5.50	....	....
8	2.20	2.20	2.45	2.75	3.75	6.20	....	....
9	2.65	2.65	2.90	3.40	4.30	7.85	....	....
10	3.15	3.15	3.30	4.00	5.00	8.40	....	....
11	3.75	3.75	4.50	4.80	5.50	9.05	....	....
12	4.40	4.40	4.75	5.10	5.85	9.70	....	....
13	5.00	5.00	5.50	6.00	6.30	10.35	....	....
14	....	....	7.00	7.25	....	11.00	....	....
15	....	....	7.50	7.75	....	11.75	....	....
16	....	....	8.00	8.25	....	12.50	....	....

1¼-Inch Branches—Center to Center, 3 Inches

No. of Branches	1	1¼	1½	2	2½	3	3½	4
2	....	$1.30	$1.30	$1.50	$1.95	.....	.....	....
3	....	1.65	1.65	1.90	2.40	.....	....	....
4	....	2.00	2.00	2.40	2.85	$4.30	....	....
5	....	2.40	2.40	2.90	3.55	4.90	....	....
6	....	2.80	2.80	3.30	3.95	5.40	....	....
7	....	3.20	3.20	3.90	4.20	6.25	....	....
8	....	3.60	3.60	4.50	4.95	7.10	....	....
9	....	4.30	4.30	5.25	6.15	8.25	....	....
10	....	4.80	4.80	5.85	6.85	9.20	....	....
11	....	5.00	5.00	6.25	7.25	10.00	....	....
12	....	5.25	5.25	6.50	7.65	10.85	....	....
13	....	6.00	6.00	7.00	8.25	11.65	....	....
14	....	6.75	6.75	7.75	9.00	.....	....	....
15	....	7.50	7.50	8.50	9.75	.....	....	....
16	....	8.50	8.50	9.50	10.75	.....	....	....

1½-Inch Branches—Center to Center, 3½ Inches

No. of Branches	1	1¼	1½	2	2½	3	3½	4
2	....	.....	$2.10	$2.10	$2.85	$3.15	....	....
3	....	.....	2.70	2.70	3.45	3.80	....	....
4	....	.....	3.35	3.35	4.15	4.60	....	....
5	....	.....	4.00	4.00	5.00	5.50	....	....
6	....	.....	4.65	4.65	5.75	6.25	....	....
7	....	.....	5.25	5.25	6.50	7.25	....	....
8	....	....	5.85	5.85	7.00	7.75	....	....
9	....	.....	6.50	6.50	8.25	9.00	....	....
10	....	.....	7.60	7.60	9.25	10.00	....	....
11	....	.....	8.00	8.00	9.75	10.75	....	....
12	....	.....	8.50	8.50	10.50	11.50	....	....
13	....	.....	9.50	9.50	11.50	12.75	....	....

2-Inch Branches—Center to Center, 4½ Inches

No. of Branches	1	1¼	1½	2	2½	3	3½	4
2	....	.....	.....	$4.10	$4.50	$4.50	$5.00	$5.50
3	....	.....	.....	5.25	5.75	5.75	6.25	6.75
4	....	.....	.....	6.40	7.00	7.00	7.75	8.25
5	....	.....	.....	7.65	8.50	8.50	9.25	9.75
6	....	.....	.....	8.80	9.75	9.75	10.75	11.25
7	....	.....	.....	10.60	11.75	11.75	13.00	13.50
8	....	.....	.....	11.50	12.75	12.75	14.00	14.50
9	....	.....	.....	12.25	13.50	13.50	15.00	15.50
10	....	.....	.....	13.50	15.00	15.00	16.50	17.00
11	....	.....	.....	14.25	15.75	15.75	.....	....
12	....	.....	.....	15.00	16.50	16.50	.....	.....
13	....	.....	.....	16.00	17.50	17.50	.....	.....

Back or side outlets charged as additional front outlets. In ordering state size of run required. Branch tees for circulation are tapped right hand—all openings. Branch tees for box coils are tapped left hand in branches and right hand in back or side outlet.

Extra Heavy Cast Iron Fittings

For 250 Pounds Steam Working Pressure

Elbows

Size In.	Price, Each: Elbows	Reducing Elbows	Size In.	Price, Each: Elbows	Reducing Elbows
½	$.25	$.35	4½	$4.25	$5.30
¾	.30	.40	5	5.50	6:80
1	.35	.45	6	8.00	10.00
1¼	.45	.55	7	12.00	.....
1½	.60	.75	8	17.00	.....
2	.75	.95	9	25.00	.....
2½	1.25	1.55	10	28.00	.....
3	2.00	2.50	12	40.00	.....
3½	2.75	3.40	..	.....	.....
4	3.50	4.40	..	.....	.....

45° Elbows

Size In.	Price Each	Size In.	Price Each	Size In.	Price Each
½	$.35	2½	$1.50	6	$9.75
¾	.40	3	2.50	7	14.50
1	.44	3½	3.50	8	21.00
1¼	.55	4	4.50	9	31.00
1½	.70	4½	5.50	10	34 00
2	.90	5	6.75	12	48.00

Tees

Size In.	Price, Each: Tees	Reduc. Tees
½	$.40	$.55
¾	.45	.60

Size In.	Price, Each: Tees	Reduc. Tees	Size In.	Price, Each: Tees	Reduc. Tees
1	$.55	$.70	5	$8.25	$10.25
1¼	.70	.90	6	12.00	15 00
1½	.90	1.15	7	18.00	22.50
2	1.15	1.40	8	25.00	31.00
2½	1.80	2.25	9	35 00	44.00
3	3 00	3.75	10	42 00	52.00
3½	4.25	5 30	12	60.00	75.00
4	5.50	6.85	..	.....	......
4½	6.75	8.50	..	.....	......

Crosses

Size In.	Price, Each: Crosses	Reducing Crosses	Size In.	Price, Each: Crosses	Reducing Crosses
½	$.60	$.80	4	$7 00	$8 75
¾	.65	.85	4½	8 50	10 00
1	.70	.90	5	11 00	13 75
1¼	.90	1.15	6	16 00	20 00
1½	1.20	1.50	7	24 00	30 00
2	1.50	1.85	8	34 00	42 00
2½	2.50	3.15	9	48 00	60 00
3	4 00	5 00	10	56 00	70 00
3½	5.50	6.85	12	80.00	100.00

Y Branches

Size In.	Price, Each: Y Branches	Reducing Y Branches	Size In.	Price, Each: Y Branches	Reducing Y Branches
½	$ 90	.....	4	$11 00	$13.75
¾	1.10	.....	4½	13 50	16.88
1	1.10	$1.38	5	16 50	20.63
1¼	1 35	1.75	6	24 00	30 00
1½	1 80	2 25	7	36 00	45.00
2	2 25	2.88	8	50 00	62.50
2½	3.75	4.50	9	72.00	90.00
3	6.00	7.50	10	84.00	105.00
3½	8.25	10.63	12	120.00	150.00

Reducers

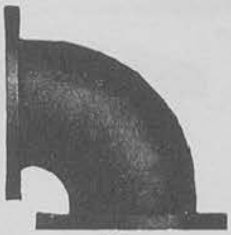
Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
½	$.28	2	$.83	4½	$4.68	9	$27.50
¾	.33	2½	1.38	5	6.00	10	31.00
1	.39	3	2.20	6	8.80	12	44.00
1¼	.50	3½	3.05	7	13.20	..	.....
1½	.66	4	3.85	8	18.75	..	.....

Plugs

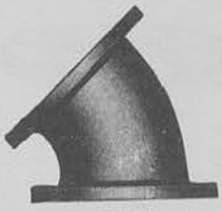
Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
½	$.04	2	$.15	4½	$1.00	9	$5.00
¾	.06	2½	.27	5	1.35	10	5.75
1	.08	3	.38	6	1.80	12	7.50
1¼	.09	3½	.57	7	2.80	..	....
1½	.11	4	.63	8	4.15	..	....

For galvanized extra heavy fittings, double above lists.

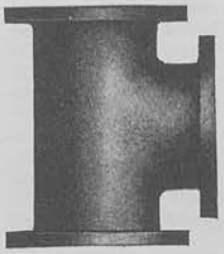
Cast Iron Flanged Fittings



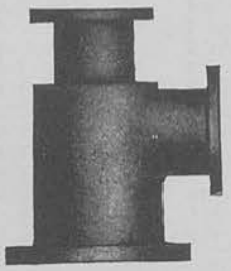
Elbow



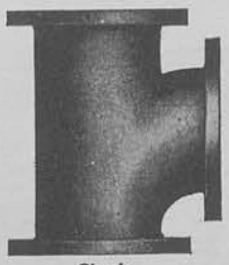
45° Elbow



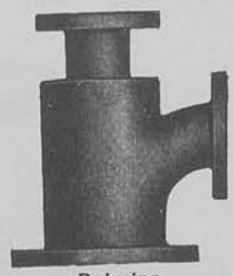
Tee



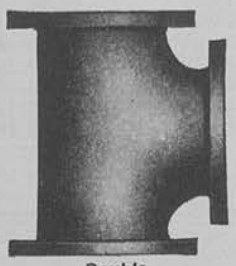
Reducing Tee



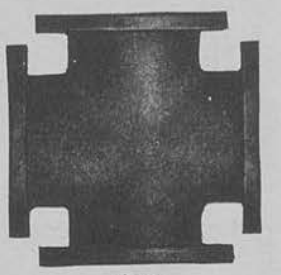
Single Sweep Tee



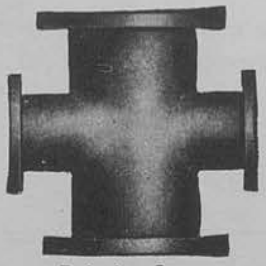
Reducing Single Sweep Tee



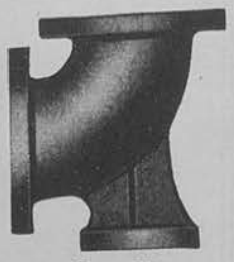
Double Sweep Tee



Cross



Reducing Cross



Base Elbow

Standard Cast Iron Flanged Fittings

125 Pounds Steam Working Pressure

90° Elbows

Size In.	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size Inches	Price, Each: Faced Only	Price, Each: Faced an Drilled
1¼	$3.00	$3.60	8	$12.00	$13.60
1½	3.00	3.60	9	17.00	19.25
2	3.00	3.60	10	19.00	21.70
2½	3.15	3.75	12	28.00	31.00
3	3.45	4.15	14	41.50	45.25
3½	4.05	4.90	15	47.00	51.50
4	4.50	5.50	16	54.50	59.50
4½	5.50	6.50	18	71.00	77.00
5	6.25	7.25	20	90.00	97.00
6	7.60	8.90	22	113.00	122.00
7	10.50	12.00	24	140.00	150.00

45° Elbows

1¼	$3.30	$3.90	8	$12.60	$14.20
1½	3.30	3.90	9	17.75	20.00
2	3.30	3.90	10	20.00	22.70
2½	3.50	4.10	12	29.50	32.50
3	3.80	4.50	14	41.50	45.25
3½	4.50	5.35	15	47.00	51.50
4	5.00	6.00	16	54.50	59.50
4½	6.00	7.00	18	71.00	77.00
5	6.90	7.90	20	90.00	97.00
6	8.35	9.65	22	113.00	122.00
7	11.00	12.50	24	140.00	150.00

Reducing Elbows

3	$6.90	$7.60	9	$34.00	$36.25
3½	8.10	8.95	10	38.00	40.70
4	9.00	10.00	12	56.00	59.00
4½	11.00	12.00	14	70.00	73.75
5	12.50	13.50	15	80.00	84.50
6	15.25	16.55	16	90.00	95.00
7	21.00	22.50	18	105.00	111.00
8	24.00	25.60	20	120.00	127.00

Flanged taper reducing elbows not listed made to order at special price.

Long Radius Elbows

2	$5.00	$5.90	9	$28.50	$31.85
2½	5.25	6.15	10	31.50	35.50
3	5.75	6.85	12	46.50	51.00
3½	6.75	8.00	14	69.00	74.50
4	7.50	9.00	15	78.00	84.75
4½	9.25	10.75	16	91.00	98.50
5	10.50	12.00	18	118.00	127.00
6	12.65	14.60	20	150.00	160.00
7	17.50	19.75	22	190.00	203.00
8	20.00	22.40	24	235.00	250.00

Base Elbows

Size In.	Price, Each: Faced Only	Faced and Drilled	Facing and Drilling Base Flanges	Size In.	Price, Each: Faced Only	Faced and Drilled	Facing and Drilling Base Flanges
4	$9.00	$10.00	$3.00	12	$56.00	$59.00	$7.50
4½	11.00	12.00	3 00	14	70.00	73.75	7.50
5	12.50	13.50	3.50	15	80.00	84.50	7.50
6	15.25	16.55	3.50	16	90.00	95.00	7.50
7	21.00	22.50	3.50	18	105.00	111.00	12.00
8	24.00	25.60	5.00	20	120.00	127.00	12.00
9	34.00	36.25	5.00	22	150.00	159.00	12.00
10	38.00	40.70	5.00	24	190.00	200.00	12.00

Reducers

Size In.	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size In.	Price, Each: Faced Only	Price, Each: Faced and Drilled
3	$6.90	$7.60	8	$24.00	$25.60
3½	8.10	8.95	10	38.00	40.70
4	9.00	10.00	12	56.00	59.00
5	12.50	13.50	14	70.00	73.75
6	15.25	16.55	15	80.00	84.50
7	21.00	22.50	16	90.00	95.00

Flanged fittings will always be furnished faced and drilled unless otherwise advised.

Standard Cast Iron Flanged Fittings

125 Pounds Steam Working Pressure

Tees

Size Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled
1¼	$4.35	$5.25	8	$17.40	$19.80
1½	4.35	5.25	9	24.65	28.00
2	4.35	5.25	10	27.50	31.50
2½	4.55	5.45	12	40.50	45.00
3	5.00	6.10	14	60.00	65.50
3½	5.85	7.10	15	68.00	74.75
4	6.50	8.00	16	79.00	86.50
4½	8.00	9.50	18	103.00	112.00
5	9.10	10.60	20	130.00	140.00
6	11.00	12.95	22	164.00	177.00
7	15.25	17.50	24	203.00	218.00

Reducing Tees

Size Inches	Faced Only	Faced and Drilled	Size Inches	Faced Only	Faced and Drilled
1½	$5.00	$5.90	9	$28.50	$31.85
2	5.00	5.90	10	31.50	35.50
2½	5.25	6.15	12	46.50	51.00
3	5.75	6.85	14	69.00	74.50
3½	6.75	8.00	15	78.00	84.75
4	7.50	9.00	16	91.00	98.50
4½	9.25	10.75	18	118.00	127.00
5	10.50	12.00	20	150.00	160.00
6	12.65	14.60	22	189.00	202.00
7	17.50	19.75	24	233.00	248.00
8	20.00	22.40	..	......	......

Crosses and Laterals

Size Inches	Faced Only	Faced and Drilled	Size Inches	Faced Only	Faced and Drilled
1¼	*$6.75	*$7.95	8	$26.50	$29.75
1½	*6.75	*7.95	9	37.50	42.00
2	6.75	7.95	10	42.00	47.50
2½	6.95	8.15	12	61.50	67.50
3	7.65	9.05	14	91.00	98.50
3½	9.00	10.70	15	103.00	112.00
4	10.00	12.00	16	120.00	130.00
4½	12.00	14.00	18	157.00	169.00
5	13.75	15.75	20	198.00	212.00
6	16.75	19.25	22	248.00	266.00
7	23.00	26.00	23	310.00	330.00

*Crosses only.

Reducing Crosses and Laterals

Size Inches	Faced Only	Faced and Drilled	Size Inches	Faced Only	Faced and Drilled
2	$7.75	$8.95	9	$43.00	$47.50
2½	8.00	9.20	10	48.00	53.50
3	8.75	10.15	12	71.00	77.00
3½	10.35	12.05	14	105.00	112.50
4	11.50	13.50	15	118.00	127.00
4½	13.75	15.75	16	138.00	148.00
5	15.75	17.75	18	180.00	192.00
6	19.25	21.75	20	228.00	242.00
7	26.50	29.50	22	285.00	303.00
8	30.50	33.75	24	355.00	375.00

Single and Double Sweep Tees

Size Inches	Faced Only	Faced and Drilled	Size Inches	Faced Only	Faced and Drilled
1¼	*$5.00	*$5.90	8	$20.00	$22.40
1½	*5.00	*5.90	9	28.50	31.85
2	5.00	5.90	10	31.50	35.50
2½	5.25	6.15	12	46.50	51.00
3	5.75	6.85	14	69.00	74.50
3½	6.75	8.00	15	78.00	84.75
4	7.50	9.00	16	91.00	98.50
4½	9.25	10.75	18	118.00	127.00
5	10.50	12.00	20	150.00	160.00
6	12.65	14.60	22	189.00	202.00
7	17.50	19.75	24	233.00	248.00

*Double sweep tees only.

Reducing Single and Double Sweep Tees

Size Inches	Faced Only	Faced and Drilled	Size Inches	Faced Only	Faced and Drilled
2	*$5.75	*$6.65	9	$32.75	$36.10
2½	6.00	6.90	10	36.00	40.00
3	6.60	7.70	12	53.50	58.00
3½	7.75	9.00	14	79.00	84.50
4	8.65	10.15	15	90.00	96.75
4½	10.60	12.10	16	105.00	112.50
5	12.00	13.50	18	135.00	144.00
6	14.50	16.45	20	173.00	183.00
7	20.00	22.25	22	217.00	230.00
8	23.00	25.40	24	268.00	283.00

*Double sweep tees only.

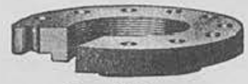
All square turn and sweep pattern tees and crosses have same dimensions. Single sweep tees not made with outlet larger than run.

Flanged fittings and flanges will always be furnished faced and drilled unless otherwise advised.

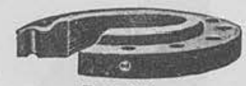
Standard Cast Iron Flanges

For 125 Pounds Steam Working Pressure

Companion Flanges



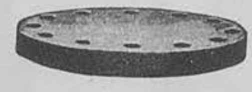
Smooth Face



Rear View Showing Hub

Size Inches	Bolt Circle Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size Inches	Bolt Circle Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled
1 x 4	3	$.55	$.80	8x13½	11¾	$3.10	$3.80
1¼x 4½	3⅜	.60	.85	9x15	13¼	3.85	4.65
1½x 5	3⅞	.65	.90	10x16	14¼	4.50	5.50
2 x 6	4¾	.75	1.00	12x19	17	6.50	7.65
2½x 7	5½	.85	1.10	14x21	18¾	9.00	10.35
3 x 7½	6	.95	1.25	15x21	20	11.50	13.20
3½x 8½	7	1.20	1.55	15x22¼	20	11.50	13.20
4 x 9	7½	1.35	1.80	16x23½	21¼	13.50	15.30
4½x 9¼	7¾	1.45	1.90	18x25	22¾	16.00	18.00
5 x10	8½	1.60	2.05	20x27½	25	19.00	21.50
6 x11	9½	2.00	2.50	22x29½	27¼	22.00	25.00
7 x12½	10¾	2.65	3.25	24x32	27½	27.00	30.50

Blind or Solid Flanges



Size Inches	Bolt Circle Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size Inches	Bolt Circle Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled
2 x 6	4¾	$1.15	$1.40	14x21	18¾	$13.50	$14.85
2½x 7	5½	1.30	1.55	15x22¼	20	17.00	18.70
3 x 7½	6	1.40	1.70	16x23½	21¼	20.00	21.80
3½x 8½	7	1.80	2.15	18x25	22¾	24.00	26.00
4 x 9	7½	2.00	2.45	20x27½	25	28.00	30.50
4½x 9¼	7¾	2.20	2.65	22x29½	27¼	33.00	36.00
5 x10	8½	2.40	2.85	24x32	29½	40.00	43.50
6 x11	9½	3.00	3.50	26x34¼	31¾	62.50	70.00
7 x12½	10¾	4.00	4.60	28x36½	34	77.50	85.00
8 x13½	11¾	4.60	5.30	30x38¾	36	90.00	100.00
9 x15	13¼	5.75	6.55	32x41¾	38½	110.00	120.00
10 x16	14¼	6.75	7.75	34x43¾	40½	122.50	135.00
12 x19	17	9.75	10.90	36x46	42¾	137.50	150.00

Telephone Your Orders

We are organized to give Special Service on Telephone orders.

Use the telephone and save time.

Standard Cast Iron Reducing Companion Flanges

With Ribs
For 125 Pounds Steam Working Pressure

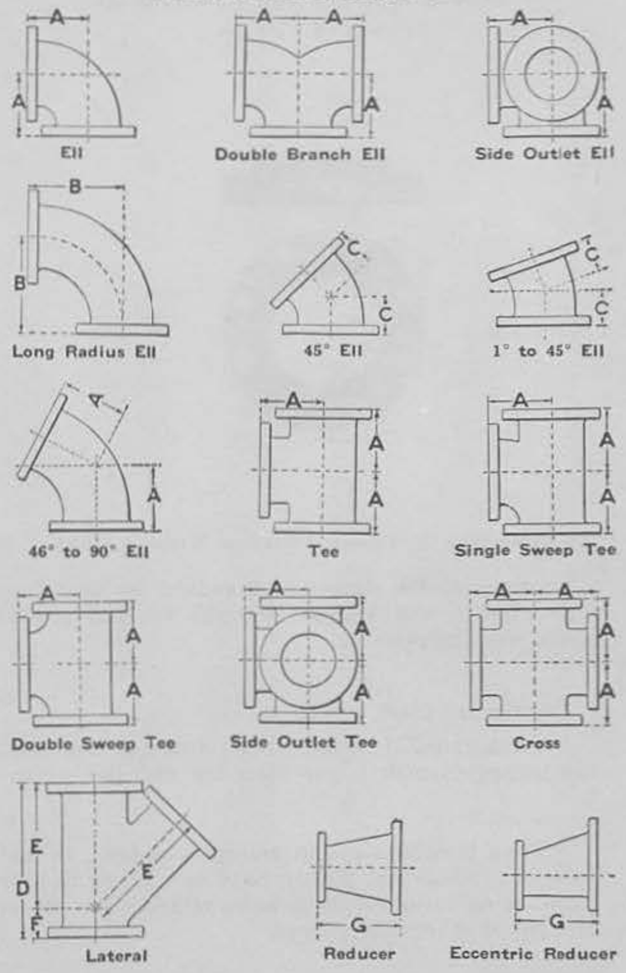
Size Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled	Size Inches	Price, Each: Faced Only	Price, Each: Faced and Drilled
1 x 6	1.30	1.55	7 x15	6.35	7.15
1¼x 6	1.30	1.55	8 x15	6.35	7.15
1½x 6	1.30	1.55	1½x16	7.45	8.45
1½x 7	1.45	1.70	2 x16	7.45	8.45
2 x 7	1.45	1.70	2½x16	7.45	8.45
1½x 7½	1.55	1.85	3 x16	7.45	8.45
2 x 7½	1.55	1.85	3½x16	7.45	8.45
2½x 7½	1.55	1.85	4 x16	7.45	8.45
1½x 8½	2.00	2.35	4½x16	7.45	8.45
2 x 8½	2.00	2.35	5 x16	7.45	8.45
2½x 8½	2.00	2.35	6 x16	7.45	8.45
3 x 8½	2.00	2.35	7 x16	7.45	8.45
1½x 9	2.20	2.65	8 x16	7.45	8.45
2 x 9	2.20	2.65	9 x16	7.45	8.45
2½x 9	2.20	2.65	1½x19	10.75	11.90
3 x 9	2.20	2.65	2 x19	10.75	11.90
3½x 9	2.20	2.65	2½x19	10.75	11.90
1½x 9¼	2.40	2.85	3 x19	10.75	11.90
2 x 9¼	2.40	2.85	3½x19	10.75	11.90
2½x 9¼	2.40	2.85	4 x19	10.75	11.90
3 x 9¼	2.40	2.85	4½x19	10.75	11.90
3½x 9¼	2.40	2.85	5 x19	10.75	11.90
4 x 9¼	2.40	2.85	6 x19	10.75	11.90
1½x10	2.65	3.10	7 x19	10.75	11.90
2 x10	2.65	3.10	8 x19	10.75	11.90
2½x10	2.65	3.10	9 x19	10.75	11.90
3 x10	2.65	3.10	10 x19	10.75	11.90
3½x10	2.65	3.10	4 x21	15.00	16.35
4 x10	2.65	3.10	5 x21	15.00	16.35
4½x10	2.65	3.10	6 x21	15.00	16.35
1½x11	3.30	3.80	7 x21	15.00	16.35
2 x11	3.30	3.80	8 x21	15.00	16.35
2½x11	3.30	3.80	9 x21	15.00	16.35
3 x11	3.30	3.80	10 x21	15.00	16.35
3½x11	3.30	3.80	12 x21	15.00	16.35
4 x11	3.30	3.80	8 x22¼	19.00	20.70
4½x11	3.30	3.80	10 x22¼	19.00	20.70
5 x11	3.30	3.80	12 x22¼	19.00	20.70
1½x12½	4.40	5.00	14 x22¼	19.00	20.70
2 x12½	4.40	5.00	6 x23½	22.00	23.80
2½x12½	4.40	5.00	8 x23½	22.00	23.80
3 x12½	4.40	5.00	10 x23½	22.00	23.80
3½x12½	4.40	5.00	12 x23½	22.00	23.80
4 x12½	4.40	5.00	14 x23½	22.00	23.80
4½x12½	4.40	5.00	15 x23½	22.00	23.80
5 x12½	4.40	5.00	6 x25	26.50	28.50
6 x12½	4.40	5.00	8 x25	26.50	28.50
1½x13½	5.10	5.80	10 x25	26.50	28.50
2 x13½	5.10	5.80	12 x25	26.50	28.50
2½x13½	5.10	5.80	14 x25	26.50	28.50
3 x13½	5.10	5.80	15 x25	26.50	28.50
3½x13½	5.10	5.80	16 x25	26.50	28.50
4 x13½	5.10	5.80	14 x27½	31.00	33.50
5 x13½	5.10	5.80	15 x27½	31.00	33.50
6 x13½	5.10	5.80	16 x27½	31.00	33.50
7 x13½	5.10	5.80	18 x27½	31.00	33.50
1½x15	6.35	7.15	15 x29½	36.00	39.00
2 x15	6.35	7.15	16 x29½	36.00	39.00
2½x15	6.35	7.15	18 x29½	36.00	39.00
3 x15	6.35	7.15	20 x29½	36.00	39.00
3½x15	6.35	7.15	14 x32	44.00	47.50
4 x15	6.35	7.15	16 x32	44.00	47.50
4½x15	6.35	7.15	18 x32	44.00	47.50
5 x15	6.35	7.15	20 x32	44.00	47.50
6 x15	6.35	7.15	....	.....	.....

Extra for Galvanizing. Prices on Application.

Flanged fittings and flanges will always be furnished faced and drilled unless otherwise advised.

General Dimensions of Standard and Low Pressure Cast Iron Flanged Fittings

American Standard, Straight Sizes

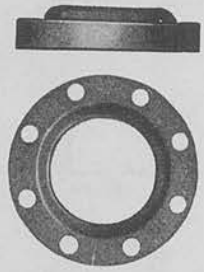


Size In.	AA Face to Face Tees and Crosses	Center to Face: *A Elbows Tees and Crosses	Center to Face: B Long Radius Elbows	Center to Face: *C 45° Elbows	45° Laterals: D Face to Face	45° Laterals: E Center to Face	45° Laterals: F Center to Face	G Face to Face Reducers	Flanges: Diam.	Flanges: Thickness
1	7	3½	5	1¾	7½	5¾	1¾	...	4¼	7/16
1¼	7½	3¾	5½	2	8	6¼	1¾	...	4⅝	½
1½	8	4	6	2¼	9	7	2	...	5	9/16
2	9	4½	6½	2½	10½	8	2½	...	6	⅝
2½	10	5	7	3	12	9½	2½	...	7	11/16
3	11	5½	7¾	3	13	10	3	6	7½	¾
3½	12	6	8½	3½	14½	11½	3	6½	8½	13/16
4	13	6½	9	4	15	12	3	7	9	15/16
4½	14	7	9½	4	15½	12½	3	7½	9¼	15/16
5	15	7½	10¼	4½	17	13½	3½	8	10	15/16
6	16	8	11½	5	18	14½	3½	9	11	1
7	17	8½	12¾	5½	20½	16½	4	10	12½	1 1/16
8	18	9	14	5½	22	17½	4½	11	13½	1⅛
9	20	10	15¼	6	24	19½	4½	11½	15	1⅛
10	22	11	16½	6½	25½	20½	5	12	16	1 3/16
12	24	12	19	7½	30	24½	5½	14	19	1¼
14	28	14	21½	7½	33	27	6	16	21	1⅜
15	29	14½	22¾	8	34½	28½	6	17	22¼	1⅜
16	30	15	24	8	36½	30	6½	18	23½	1 7/16
18	33	16½	26½	8½	39	32	7	19	25	1 9/16
20	36	18	29	9½	43	35	8	20	27½	1 11/16
22	40	20	31½	10	46	37½	8½	22	29½	1 13/16
24	44	22	34	11	49½	40½	9	24	32	1⅞

*Special angle fittings 1° to 45° use center to face dimension of 45° elbow, and 46° to 90° use center to face dimension of 90° elbow.

Templates for Drilling Flanges

For Drilling Standard and Low Pressure Valves and Fittings



American Standard, Effective March 1, 1928.

Conform to the American Standard for Cast Iron Pipe Flanges and Flanged Fittings for 125 pounds steam working pressure.

Flanges are plain faced.

For bolts smaller than 1¼-inch diameter, bolt holes are drilled ⅛-inch larger than the diameter of the bolt.

Drilling templates are in multiples of four, so that valves or fittings may be turned to face in any quarter when being installed. Bolt holes straddle the center line unless otherwise ordered.

Bolt holes are not spot faced unless so ordered. An extra charge is made for spot facing.

Size In.	Diam. Flanges In.	Thickness Flanges In.	Diam. Bolt Circle In.	No. Bolts	Diam. Bolts In.	Length Bolts In.
1	4¼	7/16	3⅛	4	½	1½
1¼	4⅝	½	3½	4	½	1¾
1½	5	9/16	3⅞	4	½	1¾
2	6	⅝	4¾	4	⅝	2
2½	7	11/16	5½	4	⅝	2¼
3	7½	¾	6	4	⅝	2¼
3½	8½	13/16	7	8	⅝	2½
4	9	15/16	7½	8	⅝	2¾
5	10	15/16	8½	8	¾	2¾
6	11	1	9½	8	¾	3
8	13½	1⅛	11¾	8	¾	3¼
10	16	1 3/16	14¼	12	⅞	3½
12	19	1¼	17	12	⅞	3¾
14	21	1⅜	18¾	12	1	4
16	23½	1 7/16	21¼	16	1	4¼
18	25	1 9/16	22¾	16	1⅛	4½
20	27½	1 11/16	25	20	1⅛	4¾
24	32	1⅞	29½	20	1¼	5¼

Templates for Drilling Flanges

For Drilling Extra Heavy Valves and Fittings

American Standard, Effective March 1, 1938.

Conform to the American Standard for Cast Iron Pipe Flanges and Flanged Fittings for 250 pounds steam working pressure.

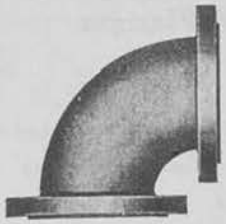
The flanges have a 1/16-inch raised face. The raised face is included in the dimension for thickness of flange.

For bolts smaller than 1¾-inch diameter, bolt holes are drilled ⅛-inch larger than the diameter of the bolt.

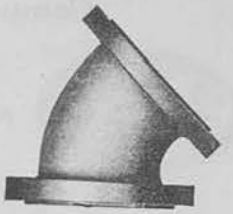
Drilling templates are in multiples of four, so that valves or fittings may be turned to face in any quarter when being installed. Bolt holes straddle the center line unless otherwise ordered.

Size In.	Diam. Flanges In.	Thickness Flanges In.	Diam. Bolt Circle In.	No. Bolts	Diam. Bolts In.	Length Bolts In.
1	4⅞	11/16	3½	4	⅝	2¼
1¼	5¼	¾	3⅞	4	⅝	2½
1½	6⅛	13/16	4½	4	¾	2½
2	6½	⅞	5	8	⅝	2½
2½	7½	1	5⅞	8	¾	3
3	8¼	1⅛	6⅝	8	¾	3¼
3½	9	1 3/16	7¼	8	¾	3¼
4	10	1¼	7⅞	8	¾	3½
5	11	1⅜	9¼	8	¾	3¾
6	12½	1 7/16	10⅝	12	¾	3¾
8	15	1⅝	13	12	⅞	4½
10	17½	1⅞	15¼	16	1	5
12	20½	2	17¾	16	1⅛	5½
14	23	2⅛	20¼	20	1⅛	5¾
16	25½	2¼	22½	20	1¼	6
18	28	2⅜	24¾	24	1¼	6¼
20	30½	2½	27	24	1¼	6½
24	36	2¾	32	24	1½	7½

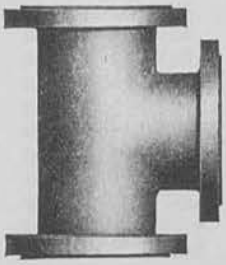
Extra Heavy Cast Iron Flanged Fittings



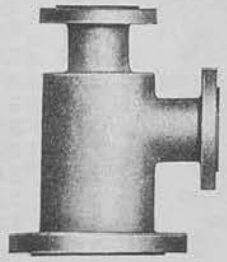
Elbow



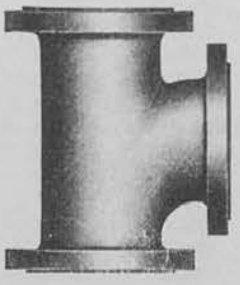
45° Elbow



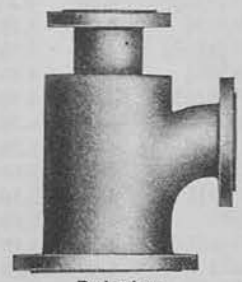
Tee



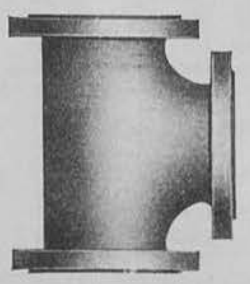
Reducing Tee



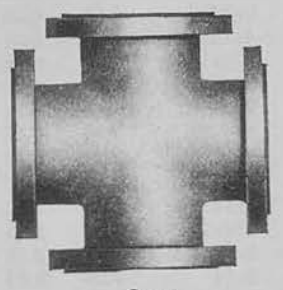
Single Sweep Tee



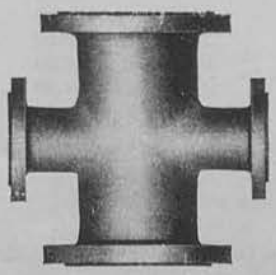
Reducing Single Sweep Tee



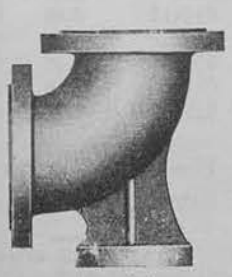
Double Sweep Tee



Cross



Reducing Cross



Base Elbow

Extra Heavy Cast Iron Flanged Fittings

250 Pounds Steam Working Pressure

90° Elbows

Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled
1¼	$4.50	$5.40	8	$18.00	$20.50
1½	4.50	5.40	9	25.50	28.85
2	4.50	5.40	10	28.50	32.50
2½	4.75	5.65	12	42.00	46.50
3	5.15	6.25	14	62.00	67.50
3½	6.10	7.35	15	70.00	77.00
4	6.75	8.25	16	82.00	90.00
4½	8.25	9.75	18	106.00	115.00
5	9.35	10.85	20	135.00	145.00
6	11.40	13.40	22	170.00	183.00
7	15.75	18.00	24	210.00	225.00

45° Elbows

1¼	$5.00	$5.90	8	$19.00	$21.50
1½	5.00	5.90	9	26.75	30.10
2	5.00	5.90	10	30.00	34.00
2½	5.25	6.15	12	44.00	48.50
3	5.65	6.75	14	62.00	67.50
3½	6.75	8.00	15	70.00	77.00
4	7.50	9.00	16	82.00	90.00
4½	9.00	10.50	18	106.00	115.00
5	10.35	11.85	20	135.00	145.00
6	12.50	14.50	22	170.00	183.00
7	16.50	18.75	24	210.00	225.00

Reducing Elbows

2	$9.00	$9.90	7	$31.50	$33.75
2½	9.50	10.40	8	36.00	38.50
3	10.25	11.35	10	57.00	61.00
3½	12.25	13.50	12	84.00	88.50
4	13.50	15.00	14	105.00	110.50
5	18.75	20.25	15	120.00	127.00
6	22.75	24.75	16	135.00	143.00

Long Radius Elbows

2	$7.50	$8.85	9	$42.50	$47.50
2½	8.00	9.35	10	47.75	53.75
3	8.60	10.25	12	70.00	76.75
3½	10.25	12.15	14	103.50	111.75
4	11.25	13.50	15	117.00	127.00
4½	13.75	16.00	16	137.00	149.00
5	15.50	17.75	18	177.00	191.00
6	19.00	22.00	20	225.00	240.00
7	26.50	29.85	22	285.00	305.00
8	30.00	33.75	24	350.00	373.00

Base Elbows

Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Price, Each Facing and Drilling Base Flanges
4	$13.50	$15.00	$4.50
4½	16.50	18.00	4.50
5	18.75	20.25	5.25
6	22.75	24.75	5.25
7	31.50	33.75	5.25
8	36.00	38.50	7.50
9	51.00	54.35	7.50
10	57.00	61.00	7.50
12	84.00	88.50	11.00
14	105.00	110.50	11.00
15	120.00	127.00	11.00
16	135.00	143.00	11.00
18	157.00	166.00	18.00
20	180.00	190.00	18.00
22	225.00	238.00	18.00
24	285.00	300.00	18.00

Reducers

Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled
3	$10.25	$11.35	12	$84.00	$88.50
3½	12.25	13.50	14	105.00	110.00
4	13.50	15.00	15	120.00	127.00
5	18.75	20.25	16	135.00	143.00
6	22.75	24.75	18	157.00	166.00
7	31.50	33.75	20	180.00	190.00
8	36.00	38.50	22	225.00	238.00
10	57.00	61.00	24	285.00	300.00

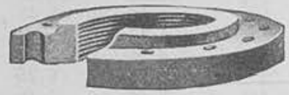
Flanged fittings will always be furnished faced and drilled unless otherwise advised.

Extra Heavy Cast Iron Flanges

For 250 Pounds Steam Working Pressure

Companion Flanges

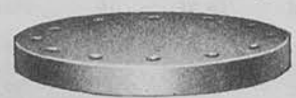
Smooth Face



Rear View Showing Hub

Size Inches	Bolt Circle Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Size Inches	Bolt Circle Inches	Price, Each Faced Only	Price, Each Faced and Drilled
1 x 4⅞	3¼	$.95	$1.30	8x15	13	$5.10	$6.15
1¼x 5¼	3¾	1.00	1.35	9x16¼	14	6.30	7.50
1½x 6⅛	4½	1.10	1.45	10x17½	15¼	7.40	8.90
2 x 6½	5	1.25	1.60	12x20½	17¾	10.75	12.50
2½x 7½	5⅞	1.40	1.75	14x23	20¼	15.00	17.00
3 x 8¼	6⅝	1.60	2.05	15x24½	21½	19.00	21.50
3½x 9	7¼	2.00	2.55	16x25½	22½	22.25	25.00
4 x10	7⅞	2.25	2.95	18x28	24¾	26.00	29.00
4½x10½	8½	2.40	3.10	20x30½	27	31.00	35.00
5 x11	9¼	2.65	3.35	22x33	29¼	36.00	41.00
6 x12½	10⅝	3.30	4.05	24x36	32	45.00	50.00
7 x14	11⅞	4.40	5.30	....	....	.....	.....

Blind or Solid Flanges

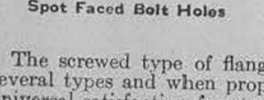


Size Inches	Bolt Circle Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Size Inches	Bolt Circle Inches	Price, Each Faced Only	Price, Each Faced and Drilled
1 x 4⅞	3¼	....	....	8x15	13	$7.65	$8.70
1¼x 5¼	3¾	....	....	9x16¼	14	9.50	10.70
1½x 6⅛	4½	$1.65	$2.00	10x17½	15¼	11.00	12.50
2 x 6½	5	1.90	2.25	12x20½	17¾	16.00	17.75
2½x 7½	5⅞	2.10	2.45	14x23	20¼	22.50	24.50
3 x 8¼	6⅝	2.40	2.85	15x24½	21½	28.50	31.00
3½x 9	7¼	3.00	3.55	16x25½	22½	33.50	36.25
4 x10	7⅞	3.35	4.05	18x28	24¾	39.00	42.00
4½x10½	8½	3.60	4.30	20x30½	27	46.00	50.00
5 x11	9¼	4.00	4.70	22x33	29¼	54.00	59.00
6 x12½	10⅝	5.00	5.75	24x36	32	67.00	72.00
7 x14	11⅞	6.60	7.50	....	....	.....	.....

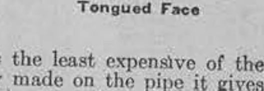
Special Finished Flanges

Corrugated Face

with Calking Recess



Spot Faced Bolt Holes



Tongued Face

The screwed type of flange is the least expensive of the several types and when properly made on the pipe it gives universal satisfaction for standard and medium steam working pressures. A few of the special finishes are shown above. Prices and complete information upon application.

Extra Heavy Cast Iron Reducing Companion Flanges

With Ribs

For 250 Pounds Saturated Steam Working Pressure

Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled	Size Inches	Price, Each Faced Only	Price, Each Faced and Drilled
1¼x6⅛	1.80	2.15	7x15	8.40	9.45
1½x6½	2.10	2.45	3x16¼	10.50	11.70
1½x7½	2.30	2.65	4x16¼	10.50	11.70
2x7½	2.30	2.65	5x16¼	10.50	11.70
1½x8¼	2.65	3.10	6x16¼	10.50	11.70
2x8¼	2.65	3.10	7x16¼	10.50	11.70
2½x8¼	2.65	3.10	8x16¼	10.50	11.70
1½x9	3.30	3.85	2x17½	12.00	13.50
2x9	3.30	3.85	2½x17½	12.00	13.50
2½x9	3.30	3.85	3x17½	12.00	13.50
3x9	3.30	3.85	4x17½	12.00	13.50
1½x10	3.70	4.40	5x17½	12.00	13.50
2x10	3.70	4.40	6x17½	12.00	13.50
2½x10	3.70	4.40	7x17½	12.00	13.50
3x10	3.70	4.40	8x17½	12.00	13.50
3½x10	3.70	4.40	9x17½	12.00	13.50
1½x10½	4.00	4.70	2½x20½	17.50	19.25
2x10½	4.00	4.70	3x20½	17.50	19.25
2½x10½	4.00	4.70	3½x20½	17.50	19.25
3x10½	4.00	4.70	4x20½	17.50	19.25
3½x10½	4.00	4.70	5x20½	17.50	19.25
4x10½	4.00	4.70	6x20½	17.50	19.25
1½x11	4.40	5.10	7x20½	17.50	19.25
2x11	4.40	5.10	8x20½	17.50	19.25
2½x11	4.40	5.10	9x20½	17.50	19.25
3x11	4.40	5.10	10x20½	17.50	19.25
3½x11	4.40	5.10	6x23	25.00	27.00
4x11	4.40	5.10	8x23	25.00	27.00
4½x11	4.40	5.10	9x23	25.00	27.00
1½x12½	5.50	6.25	10x23	25.00	27.00
2x12½	5.50	6.25	12x23	25.00	27.00
2½x12½	5.50	6.25	8x24½	31.50	34.00
3x12½	5.50	6.25	10x24½	31.50	34.00
4x12½	5.50	6.25	12x24½	31.50	34.00
4½x12½	5.50	6.25	14x24½	31.50	34.00
5x12½	5.50	6.25	10x25½	37.00	39.75
2x14	7.25	8.15	12x25½	37.00	39.75
2½x14	7.25	8.15	14x25½	37.00	39.75
3x14	7.25	8.15	15x25½	37.00	39.75
3½x14	7.25	8.15	12x28	43.00	46.00
4x14	7.25	8.15	14x28	43.00	46.00
4½x14	7.25	8.15	15x28	43.00	46.00
5x14	7.25	8.15	16x28	43.00	46.00
6x14	7.25	8.15	14x30½	51.00	55.00
1½x15	8.40	9.45	15x30½	51.00	55.00
2x15	8.40	9.45	16x30½	51.00	55.00
2½x15	8.40	9.45	18x30½	51.00	55.00
3x15	8.40	9.45	16x33	60.00	65.00
3½x15	8.40	9.45	18x33	60.00	65.00
4x15	8.40	9.45	20x33	60.00	65.00
4½x15	8.40	9.45	18x36	74.00	79.00
5x15	8.40	9.45	20x36	74.00	79.00
6x15	8.40	9.45	......	.....	.....

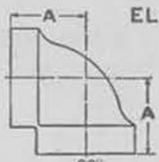
Sizes 14-inch and larger are tapped to be used with O. D. Pipe of the same sizes.

Extra for Galvanizing, Prices on Application.

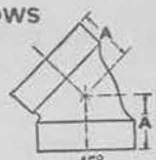
Flanges will always be furnished faced and drilled unless otherwise advised.

CAST IRON DRAINAGE FITTINGS

ELBOWS

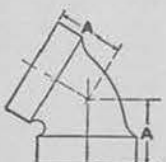


90°
Fig. 8485A

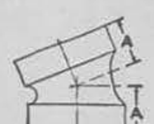


45°
Fig. 8485B

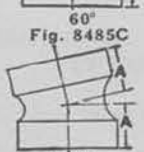
Size In.	Dimen. A In. 90°	45°	Price, Each 90° or 45° Black	Galv.
1¼	1¾	1⁵⁄₁₆	$.30	$.52
1½	1¹⁵⁄₁₆	1⁷⁄₁₆	.38	.67
*1½x1¼	....	....	.57	1.00
2	2¼	1¹¹⁄₁₆	.57	1.00
*2 x1¼	....	....	.85	1.50
*2 x1½	....	....	.85	1.50
2½	2¹¹⁄₁₆	2¹⁄₁₆	1.20	2.10
3	3¹⁄₁₆	2³⁄₁₆	1.45	2.55
4	3¹³⁄₁₆	2⅝	2.30	4.00
5	4½	3¹⁄₁₆	4.25	7.40
6	5⅛	3⁵⁄₁₆	6.25	11.00
8	6⁹⁄₁₆	4¼	15.00	26.25
10	8¹⁄₁₆	4½	31.00	54.00
12	9	5¼	47.50	83.00



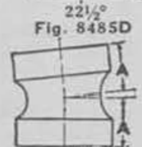
60°
Fig. 8485C



22½°
Fig. 8485D



11¼°
Fig. 8485E

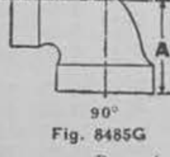


5⅝°
Fig. 8485F

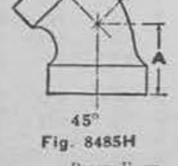
Size In.	Dimen. A, In. 60°	11¼°	22½°	5⅝°	Price, Each Black	Galv.
1¼	1⁹⁄₁₆	1¹⁄₁₆	1⅛	1³⁄₁₆	$.30	$.52
1½	1¾	1¼	1¼	1⁵⁄₁₆	.38	.67
2	2⅛	1⅜	1½	1½	.57	1.00
2½	2½	1⅝	2	1⅝	1.20	2.10
3	2¹³⁄₁₆	1¹³⁄₁₆	1¹⁵⁄₁₆	1¾	1.45	2.55
4	3⁵⁄₁₆	2¼	2¼	1⅞	2.30	4.00
5	3⅞	2¼	2⅞	2	4.25	7.40
6	4¼	2⅜	3³⁄₁₆	2¼	6.25	11.00
8	4⁹⁄₁₆	2¾	3³⁄₁₆	2½	15.00	26.25
10	5½	3	3½	2¾	31.00	54.00
12	....	....	4¼	...	47.50	83.00

90° and 90° long turn elbows are tapped, pitched ¼ inch to the foot.

LONG TURN ELBOWS



90°
Fig. 8485G



45°
Fig. 8485H

Size In.	Dimen. A In. 90°	45°	Price, Each 90° or 45° Black	Galv.
1¼	2¼	1¾	$.35	$.60
1½	2½	1⅞	.42	.72
2	3¹⁄₁₆	2¼	.65	1.15
2½	3¹¹⁄₁₆	2⅝	1.40	2.45
3	4¼	3¹⁄₁₆	1.75	3.10
4	5³⁄₁₆	3½	2.75	4.80
5	6⅛	4⅛	5.25	9.20
6	7⅛	4⅞	7.50	13.15
8	9¼	6¾	19.00	33.25
10	12¾	7½	38.00	66.50
12	13	8¾	57.50	100.00
14	14¼	....	75.00	130.00

THREE-WAY ELBOWS

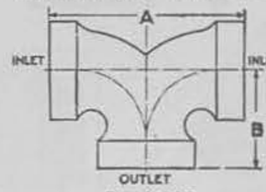


Fig. 8486E

Size Inches	Dimensions, Inches A	B	Price, Each Black	Galv.
1¼	4½	2¼	.75	1.25
1½	5¼	2⅝	.85	1.50
2	6¼	3⅛	1.10	1.95
2½	7⅜	3¹¹⁄₁₆	2.25	3.90
3	8⅝	4⁵⁄₁₆	3.00	5.25
4	10⅜	5³⁄₁₆	5.00	8.75
4x3	9½	4⁵⁄₁₆	5.50	9.65
5	12¼	6⅛	7.50	13.15
5x4	11⅜	5⁵⁄₁₆	8.25	14.50
6	14¼	7⅛	13.50	23.50
6x4	12⅜	5⁷⁄₁₆	15.00	26.25
6x5	13⅜	6¼	15.00	26.25

90° STREET ELBOWS

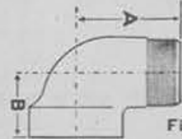


Fig. 8485J

Size In.	Dimen., In. A	B	Price, Each Black	Galv.
1¼	2⅝	1⅝	$.35	$.60
1½	2¹⁵⁄₁₆	1¹³⁄₁₆	.40	.70
2	3⁵⁄₁₆	2⅛	.60	1.10

45° STREET ELBOWS

Fig. 8485K

Size In.	Dimen., In. C	D	Price, Each Black	Galv.
1¼	1⅞	1³⁄₁₆	$.35	$.60
1½	2	1¼	.40	.70
2	2⁷⁄₁₆	1¾	.60	1.10

Dimensions subject to a slight variation and change without notice.

TEES

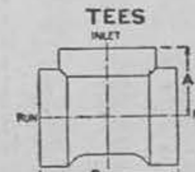


Fig. 1241C

Size Inches	Dimensions, In. A	B	Price, Each Black	Galv.
1¼	1¾	3½	$ .45	$ .80
1½	1¹⁵⁄₁₆	3⅞	.55	1.00
2	2¼	4½	.8)	1.40
2½	2¹¹⁄₁₆	5⅜	1.5υ	2.50
3	3¹⁄₁₆	6⅛	2.00	3.50
4	3¹³⁄₁₆	7⅝	3.25	5.70
5	4¹¹⁄₁₆	9⅜	6.00	10.50
6	5⅜	10¾	8.75	15.25
8	6¹³⁄₁₆	13⅝	21.00	37.00
10	8¹⁄₁₆	16⅛	43.00	75.00
12	9	18	60.00	100.00

REDUCING TEES

1½x1¼	....	...	$ .60	$ 1.10
2 x1¼	...	...	.90	1.60
2 x1½	2¼	4⅛	.90	1.60
2½x1½	2¹³⁄₁₆	4¹³⁄₁₆	1.65	2.75
2½x2	2¹⁵⁄₁₆	5⅜	1.65	2.75
3 x1½	3¼	4¹⁵⁄₁₆	2.20	3.85
3 x2	3⁵⁄₁₆	5½	2.20	3.85
4 x2	3⁹⁄₁₆	6	3.60	6.30
4 x3	4	7¹⁄₁₆	3.60	6.30
5 x2	4⅜	5⅞	6.60	11.55
5 x3	4½	7³⁄₁₆	6.60	11.55
5 x4	4⅝	8⁵⁄₁₆	6.60	11.55
6 x3	5⅛	7⁵⁄₁₆	9.60	16.75
6 x4	5¼	8⁷⁄₁₆	9.60	16.75
6 x5	5⁵⁄₁₆	9½	9.60	16.75

Inlets of tees are tapped, pitched ¼ inch to the foot.

Inlets on reducing fittings are always the smallest openings.

BASIN TEES

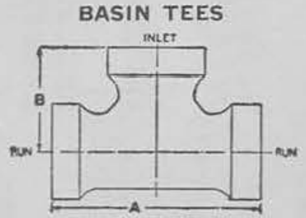


Fig. 1241A

Size Inches	Dimensions, Inches A	B	Price, Each Black	Galv.
1¼	4⅝	2⁵⁄₁₆	$.60	$1.00
1½	5⅜	2¹¹⁄₁₆	.70	1.22
1½x1¼	5⅛	2⁹⁄₁₆	.77	1.35
2	7	3½	1.10	1.95
2 x1¼	6¼	3⅛	1.20	2.10
2 x1½	6⅞	3⁹⁄₁₆	1.20	2.10
2½	8⅝	4⁵⁄₁₆	1.75	3.00

BASIN CROSSES

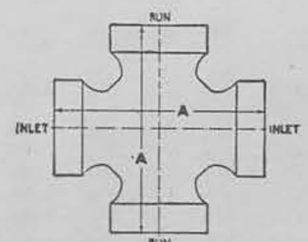


Fig. 1241B

Size Inches	Dimensions, A Inches	Price, Each Black	Galv.
1¼	4⅝	$1.25	$2.25
1½	5⅜	1.50	2.50
2	7	1.75	3.10

Inlets of basin tees and crosses are tapped, pitched ¼-inch to the foot.

These fittings have an interior shoulder, and are made with same inside capacity as the inside diameter of the pipe, thus securing an unobstructed surface, allowing all solid matter to pass without choking the pipes.

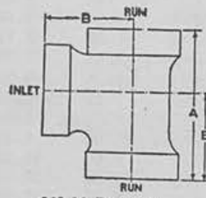
Fittings are chamfered, thus preventing damage to the threads and permitting of an easy entrance of the pipe in making up joints.

When not otherwise specified, fittings will be coated with heated asphaltum.

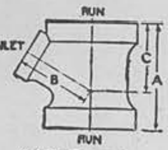
Dimensions subject to a slight variation and change without notice.

CAST IRON DRAINAGE FITTINGS

90° Y BRANCHES
TEE PATTERN



90° Y Branch
Tee Pattern
Fig. 1247A



60° Y Branch
Tee Pattern
Fig. 1247B

Size Inches	Dimensions, In. A	Dimensions, In. B	Price, Each Black	Price, Each Galv.
1 1/4	3 3/4	2 1/4	$.45	$.80
1 1/2	4 1/4	2 1/2	.57	1.00
2	5 3/16	3 1/16	.85	1.50
2 1/2	6 5/16	3 11/16	1.80	3.15
3	7 1/4	4 1/4	2.20	3.85
4	8 3/4	5 3/16	3.50	6.15
5	10 5/16	6 1/8	6.50	11.35
6	11 15/16	7 1/8	9.50	16.50
8	15 1/2	9 1/4	23.00	40.00
10	19 1/4	12 1/4	47.00	82.00

45° Y BRANCHES

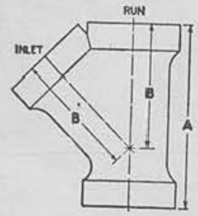


Fig. 1251A

Size Inches	Dimensions, Inches A	Dimensions, Inches B	Price, Each Black	Price, Each Galv.
1 1/4	5	3 1/4	$.52	$.90
1 1/2	5 9/16	3 11/16	.65	1.15
2	6 11/16	4 1/2	.95	1.65
2 1/2	7 7/8	5 3/8	2.10	3.70
3	9 1/16	6 1/4	2.65	4.65
4	11	7 11/16	3.85	6.75
5	13	9 3/16	7.10	12.50
6	15	10 3/4	10.50	18.50
8	17 5/8	13 3/16	25.00	44.00
10	20 9/16	15 5/8	52.00	91.00
12	24 1/4	19 9/16	75.00	130.00

90° LONG TURN Y BRANCHES
TEE PATTERN

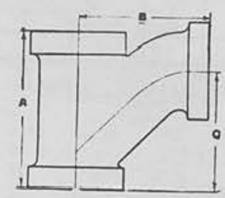


Fig. 1251B

Size Inches	Dimensions, Inches A	Dimensions, Inches B	Dimensions, Inches C	Price, Each Black	Price, Each Galv.
1 1/4	4 3/4	3 5/8	3 5/8	$.57	$1.00
1 1/2	5 3/8	4 1/8	4 1/8	.70	1.22
2	6 13/16	5 3/16	5 3/16	1.10	1.95
2 1/2	8 1/4	6 1/4	6 1/4	2.40	4.20
3	10	7 11/16	7 11/16	3.35	5.85
4	12 7/8	10	10	6.00	10.50
5	15 3/4	12 1/4	12 1/4	9.50	16.50
6	18 3/4	14 5/8	14 5/8	20.00	35.00
8	17	14 1/8	13 1/4	40.00	70.00
10	25 3/4	21 3/4	21 5/8	55.00	90.00

REDUCING 90° Y BRANCHES
TEE PATTERN

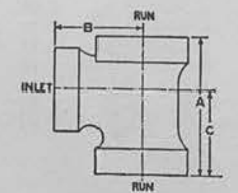


Fig. 1247C

Size Inches	Dimensions, Inches A	Dimensions, Inches B	Dimensions, Inches C	Price, Each Black	Price, Each Galv.
1 1/2x1 1/4	3 7/8	2 1/2	2 3/8	$.63	$1.10
2 x1 1/4	....	...	...	.95	1.65
2 x1 1/2	4 5/8	2 15/16	2 11/16	.95	1.65
2x1 1/2x1 1/2	4 5/8	2 15/16	2 11/16	.95	1.65
2x1 1/2x2	5 3/16	3 1/16	3 1/16	.95	1.65
2 1/2x1 1/2	4 13/16	3	2 13/16	2.00	3.50
2 1/2x2	5 1/2	3 5/16	3 1/4	2.00	3.50
3 x1 1/4	5 1/16	3 5/16	2 15/16	2.40	4.20
3 x1 1/2	5 1/16	3 5/16	2 15/16	2.40	4.20
3 x2	5 11/16	3 5/8	3 5/16	2.40	4.20
4 x1 1/4	....	...	...	3.85	6.75
4 x1 1/2	5 1/4	3 13/16	3	3.85	6.75
4 x2	5 13/16	4 1/16	3 3/8	3.85	6.75
4 x2 1/2	6 5/8	4 7/16	3 13/16	3.85	6.75
4 x3	7 3/8	4 3/4	4 5/16	3.85	6.75
5 x1 1/2	5 9/16	4 3/8	3 3/16	7.15	12.50
5 x2	6 1/8	4 5/8	3 9/16	7.15	12.50
5 x2 1/2	....	...	...	7.15	12.50
5 x3	7 3/4	5 1/4	4 1/2	7.15	12.50
5 x4	9 1/8	5 11/16	5 3/8	7.15	12.50
6 x1 1/2	....	...	...	10.50	18.50
6 x2	6 1/4	5 1/8	3 5/8	10.50	18.50
6 x3	7 7/8	5 3/4	4 9/16	10.50	18.50
6 x4	9 1/4	6 3/16	5 7/16	10.50	18.50
6 x5	10 9/16	6 5/8	6 1/4	10.50	18.50
8 x3	10	7 1/4	6 7/16	25.50	44.50
8 x4	11 9/16	7 7/16	7 1/2	25.50	44.50
8 x5	12 3/8	8 1/4	7 3/4	25.50	44.50
8 x6	15	8 1/2	10	25.50	44.50
10 x4	10 13/16	8 3/4	6 1/2	52.00	88.00
10 x6	13 3/8	9 3/4	8 3/16	52.00	88.00
10 x8	15 7/8	10	9 3/4	52.00	88.00

REDUCING 45° Y BRANCHES

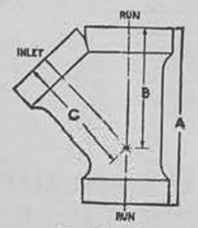


Fig. 1252A

Size Inches	Dimensions, Inches A	Dimensions, Inches B	Dimensions, Inches C	Price, Each Black	Price, Each Galv.
1 1/2x 1 1/4	5 1/4	3 1/2	3 7/16	$.72	$1.25
2 x 1 1/4	...	...	...	1.05	1.85
2 x 1 1/2	5 15/16	4 1/16	4 1/8	1.05	1.85
2 1/2x 1 1/4	...	...	...	2.30	4.00
2 1/2x 1 1/2	6 7/16	4 9/16	4 5/8	2.30	4.00
2 1/2x 2	7 1/16	4 15/16	5 1/8	2.30	4.00
3 x 1 1/2	6 5/8	4 15/16	5 1/16	2.90	5.10
3 x 2	7 3/8	5 5/16	5 3/8	2.90	5.10
3 x 2 1/2	8	5 11/16	5 13/16	2.90	5.10
4 x 1 1/4	...	...	...	4.25	7.40
4 x 1 1/2	7 3/16	5 3/4	6 1/16	4.25	7.40
4 x 2	7 11/16	6	6 5/16	4.25	7.40
4 x 2 1/2	...	...	...	4.25	7.40
4 x 3	9 1/4	6 7/8	7 3/16	4.25	7.40
5 x 2	8 1/4	6 7/8	7 3/16	7.80	13.65
5 x 3	9 13/16	7 5/8	7 7/8	7.80	13.65
5 x 4	11 3/8	8 7/16	8 1/2	7.80	13.65
6 x 2	8 7/16	7 9/16	8 1/16	11.50	20.00
6 x 3	10	8 5/16	8 3/4	11.50	20.00
6 x 4	11 7/8	9 1/16	9 3/8	11.50	20.00
6 x 5	13	9 13/16	10	11.50	20.00
8 x 3	10 15/16	10 1/4	10 1/4	27.50	48.00
8 x 4	11 7/8	10 11/16	10 11/16	27.50	48.00
8 x 5	13 3/8	11 3/16	11 3/16	27.50	48.00
8 x 6	14 7/16	11 7/8	11 7/8	27.50	48.00
10 x 4	12 15/16	12 3/8	12 3/8	57.00	97.00
10 x 5	14	12 1/4	13	57.00	97.00
10 x 6	15 1/4	13 1/2	13 3/8	57.00	97.00
10 x 8	17 1/2	14 3/8	14 3/8	57.00	97.00
12 x 6	16 7/8	15	15	80.00	140.00
12 x 8	18 7/16	15 3/8	16 1/16	80.00	140.00
12 x10	21 11/16	17 1/8	17 3/8	80.00	140.00
14 x 6	19 1/2	16 3/8	17 3/4	105.00	175.00

REDUCING 90° LONG TURN Y BRANCHES
TEE PATTERN

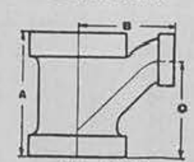


Fig. 1252B

Size Inches	Dimensions, Inches A	Dimensions, Inches B	Dimensions, Inches C	Price, Each Black	Price, Each Galv.
1 1/2x1 1/4	5 1/8	3 7/8	3 15/16	$.80	$1.40
2 x1 1/4	5 3/4	4 3/8	4 7/16	1.20	2.10
2 x1 1/2	5 5/8	4 3/8	4 7/16	1.20	2.10
2 1/2x1 1/2	5 3/4	4 9/16	4 7/16	2.65	4.65
2 1/2x2	7 3/8	5 3/4	5 3/4	2.65	4.65
3 x1 1/2	5 7/8	5 1/4	4 9/16	3.75	6.55
3 x2	7 9/16	6 1/16	5 15/16	3.75	6.55
3 x2 1/2	10	7 11/16	7 11/16	3.75	6.55
4 x1 1/2	6 1/16	5 7/16	4 3/4	6.60	11.55
4 x2	7 3/4	6 7/8	5 1/2	6.60	11.55
4 x2 1/2	8 5/8	7 1/16	6 5/8	6.60	11.55
4 x3	10	8 1/16	7 5/8	6.60	11.55
5 x1 1/2	6 5/16	6	4 15/16	10.50	18.50
5 x2	7 3/4	7 1/8	6 1/8	10.50	18.50
5 x3	10 1/4	8 5/8	7 7/8	10.50	18.50
5 x4	13	10 7/16	10 1/8	10.50	18.50
6 x2	7 15/16	7 1/4	6 5/16	22.00	38.50
6 x3	10 3/8	9 1/8	8 1/16	22.00	38.50
6 x4	13 1/16	11	10 3/16	22.00	38.50
6 x5	16 1/16	12 13/16	12 9/16	22.00	38.50
8 x3	10 5/8	10 7/8	8 3/8	44.00	77.00
8 x4	13 3/8	12	10 7/16	44.00	77.00
8 x6	14 7/8	12 1/4	11 3/4	44.00	77.00
10 x4	14	13	11	60.00	102.00
10 x6	15 1/2	13 3/8	12 1/2	60.00	102.00
12 x5	17	15 1/2	13	85.00	150.00
12 x8	20 1/2	16	14 13/16	85.00	150.00

Walworth Steel Welding Elbows

90° Elbow

Made from seamless steel. They match in all points the O.D., I.D. and wall thickness of wrought iron and steel pipe.

14-in. standard and larger have ⅜-in. walls; 14-in. extra heavy and larger have ½-in. walls. Outside walls are full thickness—no wall less than original pipe thickness.

45° Elbow

Fittings are reinforced at the crotch—the point subject to the greatest strain. All fittings have machine tool bevel, insuring a clean welding surface and thorough penetration.

Nominal Pipe Size Inches	90° Long Radius Standard Each	90° Long Radius Extra Heavy Each	90° Std. Radius Standard Each	90° Std. Radius Extra Heavy Each	45° Elbow Standard Each	45° Elbow Extra Heavy Each
¾	1.00	...	...	...	.90	...
1	1.20	1.50	...	...	1.08	1.35
1¼	1.40	1.75	...	...	1.26	1.60
1½	1.70	2.15	...	...	1.53	1.95
2	2.10	2.65	2.10	2.65	1.90	2.40
2½	3.40	4.25	3.40	4.25	3.05	3.80
3	4.90	6.15	4.90	6.15	4.40	5.55
3½	6.35	7.95	6.35	7.95	5.70	7.15
4	7.65	9.55	7.65	9.55	6.90	8.60
5	10.85	13.55	10.85	13.55	9.80	12.20
6	15.80	19.75	15.80	19.75	14.25	17.80
8	30.00	37.50	30.00	37.50	27.00	33.75
10	53.40	67.00	53.40	67.00	48.00	60.50
12	80.70	101.00	80.70	101.00	72.75	91.00
14 O.D.	120.00	150.00	120.00	150.00	108.00	135.00
16 O.D.	.....	.....	175.00	219.00	158.00	197.00
18 O.D.	.....	.....	235.00	294.00	212.00	265.00
20 O.D.	.....	.....	270.00	340.00	245.00	310.00
24 O.D.	.....	.....	340.00	410.00	315.00	.....

Walworth Welding Tees

Nominal Pipe Size Inches	Straight Standard Each	Straight Extra Heavy Each	*Reducing Standard Each	*Reducing Extra Heavy Each
¾	2.15	2.15	2.70	2.70
1	2.15	2.15	2.70	2.70
1¼	2.90	2.90	3.60	3.60
1½	3.65	3.65	4.55	4.55
2	5.00	5.00	6.25	6.25
2½	7.30	7.30	9.10	9.10
3	9.50	12.00	11.85	15.00
3½	12.50	16.00	15.60	20.00
4	13.00	17.00	16.25	21.25
5	24.00	30.00	30.00	37.50
6	28.00	35.00	35.00	43.75
8	45.00	58.00	56.25	72.50

* Made with reducing outlets only. Tees reducing in the run can be supplied by attaching Reducing Nipples to make the required reduction.

Extra heavy tees are for use with extra heavy pipe.

Walworth Welding Return Bends

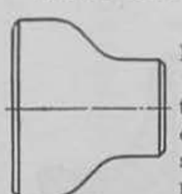
Made from seamless steel to standard and extra heavy pipe, no wall less than original pipe thickness.

Nominal Pipe Size Inches	Standard Each	Extra Heavy Each	Nominal Pipe Size Inches	Standard Each	Extra Heavy Each
¾	2.20	...	4	17.00	21.00
1	2.65	3.30	5	23.90	29.70
1¼	3.10	3.85	6	34.80	43.50
1½	3.75	4.75	8	66.00	82.50
2	4.65	5.85	10	117.50	147.40
2½	7.50	9.35	12	177.50	222.20
3	10.80	13.35	..	.....	.....

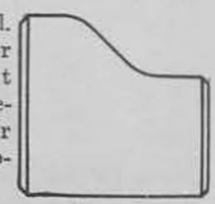
Walworth Welding Caps

Nominal Pipe Size Inches	Standard Each	Nominal Pipe Size Inches	Standard Each
1	1.70	6	5.95
1¼	1.70	8	10.10
1½	1.70	10	14.60
2	1.85	12	20.85
2½	2.00	14 O.D.	24.00
3	2.40	16 O.D.	28.00
3½	3.20	18 O.D.	32.00
4	3.70	20 O.D.	35.50
5	4.90	24 O.D.	41.75

Walworth Reducing Welding Nipples

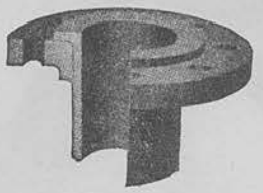


Seamless steel. Ends beveled for welding. (Not threaded.) Other reductions and larger sizes quoted on application.



Concentric Nominal Pipe Size Inches	Standard Each	Extra Heavy Each	Eccentric Nominal Pipe Size Inches	Standard Each	Extra Heavy Each
1 x ¾	1.50	2.75	4 x 2	4.00	7.00
1¼ x 1	2.00	3.50	4 x 1½	4.50	8.00
1¼ x ¾	2.00	3.50	4 x 1¼	4.50	8.00
1½ x 1¼	2.00	3.50	4 x 1	4.50	8.00
1½ x 1	2.00	3.50	5 x 4	6.00	10.50
1½ x 1¾	2.50	4.50	5 x 3½	6.50	11.50
2 x 1½	2.25	3.75	5 x 3	6.50	11.50
2 x 1¼	2.25	3.75	5 x 2½	6.50	11.50
2 x 1	2.25	3.75	5 x 2	6.50	11.50
2 x ¾	2.75	4.75	6 x 5	8.00	14.00
2½ x 2	2.50	4.50	6 x 4	8.00	14.00
2½ x 1½	2.75	5.00	6 x 3½	9.00	15.75
2½ x 1¼	2.75	5.00	6 x 3	9.00	15.75
2½ x 1	2.75	5.00	6 x 2½	9.00	15.75
3 x 2½	3.00	5.25	8 x 6	12.00	26.25
3 x 2	3.00	5.25	8 x 5	15.00	30.60
3 x 1½	3.25	5.70	8 x 4	15.00	30.60
3 x 1¼	3.25	5.70	8 x 3½	15.00	30.60
3 x 1	3.25	5.70	8 x 3	18.00	35.00
3½ x 3	3.50	6.00	10 x 8	18.00	40.00
3½ x 2½	3.50	6.00	10 x 6	20.00	44.00
3½ x 2	3.50	6.00	10 x 5	26.00	48.00
3½ x 1½	3.75	6.50	10 x 4	26.00	48.00
4 x 3½	4.00	7.00	12 x10	32.00	56.00
4 x 3	4.00	7.00	12 x 8	36.00	63.00
4 x 2½	4.00	7.00	12 x 6	36.00	63.00

Walco Lap Welding Nipples



Walworth Lap Welding Nipples

Walworth Lap One End, Other End Bevelled

Nominal Pipe Size Inches	Length of Nipple Inches	Dia. of Lap Inches	Standard Pipe Each List	Extra Heavy Pipe Each List
1 ½	6	2 7/8	4.45	4.70
2	6	3 5/8	5.75	6.25
2 ½	6	4 1/8	6.50	7.15
3	6	5	7.30	8.25
3 ½	6	5 ½	8.10	9.40
4	6	6 3/16	9.30	10.90
5	8	7 5/16	10.75	13.50
6	8	8 ½	12.75	16.35
8	8	10 5/8	16.00	24.00
10	10	12 3/4	22.75	35.75
12	10	15	30.75	48.75

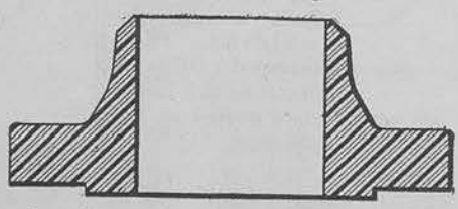
Walworth Forged Steel Lap Joint Flanges

Nominal Pipe Size	150# Flanges	300# Flanges	Nominal Pipe Sizes	150# Flanges	300# Flanges
1 ½	10.00	10.00	5	24.00	24.00
2	11.00	11.00	6	27.00	27.00
2 ½	13.00	13.00	8	35.00	35.00
3	15.00	15.00	10	48.00	48.00
3 ½	19.00	19.00	12	60.00	60.00
4	20.00	20.00			

All flanges are funished faced, drilled, and spot faced or back faced.

Walworth Forged Steel Flanges

Welding Neck Type



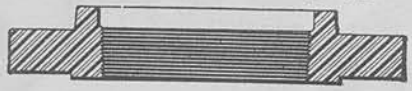
American Standard flanges, faced and drilled.

Nominal Pipe Size Inches	Each For Pressure 150-Lb.	300-Lb.	400-Lb.	600-Lb.	900-Lb.	1500-Lb.
1	11.00	11.00	.....	16.30	.....	27.00
1 ¼	11.00	11.00	.....	16.30	.....	27.00
1 ½	11.00	11.00	.....	16.30	.....	27.00
2	11.00	11.00	.....	16.30	.....	27.00
2 ½	13.00	13.00	.....	19.00	.....	35.00
3	15.00	15.00	.....	23.00	35.00	46.00
3 ½	19.00	19.00	.....	29.00	.....	.....
4	20.00	20.00	20.00	39.00	62.00	72.00
5	24.00	24.00	24.00	53.50	85.00	125.00
6	27.00	27.00	27.00	63.50	104.00	160.00
8	44.00	44.00	44.00	90.00	190.00	265.00
10	62.00	62.00	62.00	138.00	270.00	440.00
12	96.00	96.00	96.00	188.00	360.00	660.00
14 O.D.	130.00	130.00	130.00	200.00	.....	.....
16 O.D.	165.00	165.00	165.00	270.00	.....	.....
18 O.D.	220.00	220.00	220.00	.....	.....	.....
20 O.D.	290.00	290.00	290.00	.....	.....	.....
24 O.D.	380.00	380.00	380.00	.....	.....	.....

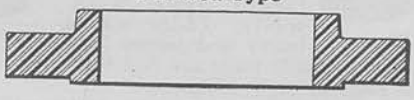
All flanges are furnished either spot faced or back faced. Orders for welding neck flanges should specify the inside diameter of each flange, or the weight of pipe to which it is to be welded.

Walworth Forged Steel Flanges

Screwed or Slip-on Welding Type



Screwed Type



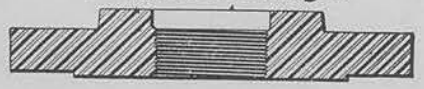
Slip-on Welding Type

American Standard flanges, faced and drilled.

Nominal Pipe Size Inches	Screwed or Slip-on, Each For Pressure 150-Lb.	300-Lb.	400-Lb.	600-Lb.	900-Lb.	1500-Lb.
1	8.00	8.00	.....	10.00	.....	14.00
1 ¼	9.00	9.00	.....	10.75	.....	14.00
1 ½	10.00	10.00	.....	11.75	.....	16.00
2	11.00	11.00	.....	13.00	.....	22.00
2 ½	13.00	13.00	.....	15.00	.....	29.00
3	15.00	15.00	.....	18.50	29.00	38.00
3 ½	19.00	19.00	.....	22.50	35.00	45.00
4	20.00	20.00	20.00	33.00	51.00	60.00
5	24.00	24.00	24.00	46.00	71.00	105.00
6	27.00	27.00	27.00	55.00	86.00	132.00
8	35.00	35.00	35.00	80.00	155.00	220.00
10	48.00	48.00	48.00	125.00	225.00	365.00
12	60.00	60.00	60.00	150.00	300.00	550.00
14 O.D.	80.00	80.00	80.00	180.00	.....	.....
16 O.D.	100.00	100.00	100.00	240.00	.....	.....
18 O.D.	125.00	125.00	125.00	300.00	.....	.....
20 O.D.	150.00	150.00	150.00	360.00	.....	.....
24 O.D.	240.00	240.00	240.00	540.00	.....	.....

All flanges are furnished either spot faced or back faced.

Walworth Forged Steel Reducing Companion Flanges



American Standard flanges, faced and drilled.

Nominal Pipe Size Inches	Each For Pressure 150-Lb.	300-Lb.	400-Lb.	600-Lb.	900-Lb.	1500-Lb.
1	16.00	16.00	.....	16.00	.....	22.00
1 ¼	18.00	18.00	.....	18.00	.....	22.00
1 ½	20.00	20.00	.....	20.00	.....	26.00
2	21.00	21.00	.....	21.00	.....	35.00
2 ½	24.50	24.50	.....	24.50	.....	48.00
3	28.00	28.00	.....	28.00	48.00	60.00
3 ½	35.00	35.00	.....	35.00	56.00	72.00
4	37.00	37.00	37.00	57.00	81.00	96.00
5	44.00	44.00	44.00	79.00	113.00	170.00
6	49.00	49.00	49.00	94.00	137.00	210.00
8	63.00	63.00	63.00	136.00	245.00	350.00
10	86.00	86.00	86.00	212.50	360.00	565.00
12	108.00	108.00	108.00	255.00	480.00	800.00
14 O.D.	144.00	144.00	144.00	306.00	.....	.....
16 O.D.	180.00	180.00	180.00	408.00	.....	.....
18 O.D.	225.00	225.00	225.00	510.00	.....	.....
20 O.D.	270.00	270.00	270.00	612.00	.....	.....
24 O.D.	380.00	380.00	380.00	918.00	.....	.....

PHONE YOUR ORDERS

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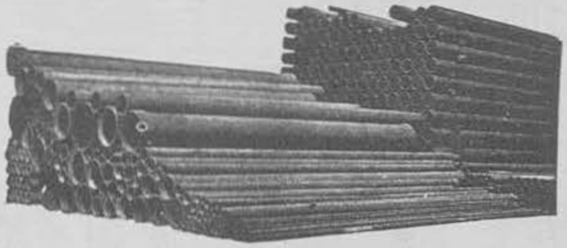
Steam, Gas and Water Pipe

Standard

Black and Galvanized

Revised January 1, 1930



A variation in weight of 5% above and 5% below is permissible.

Pipe will be furnished with threads and couplings and in random lengths unless otherwise ordered.

The taper of threads is ¾-inch diameter per foot length for all sizes. The weight per foot of pipe with threads and couplings is based on a length of 20 feet, including the coupling, but shipping lengths of all sizes will generally average less than 20 feet.

The weight desired must be specified on sizes made in more than one weight.

An extra charge will be made above standard pipe for pipe smoothed on the inside, known as reamed and drifted.

For galvanized or coated pipe, an extra charge will be made above black.

On orders for commercial sizes of pipe which are finished with threads and couplings, in sizes ⅛ to 12 inch, inclusive, and where orders state quantity in linear feet, it is understood that random lengths, fitted with threads both ends and coupling one end will be supplied, and the measurement is charged from end to end, that is to say, over all including the coupling.

If cut lengths of any sizes are ordered, instructions must appear on the face of the order specifying whether plain ends, threads only, or threads and couplings are required. The pipe proper is cut to the length specified for plain ends or threads only, and if cut lengths with threads and couplings are specified, the custom is the same with the exception that the couplings are charged separately whether they are shipped loose or screwed to the pipe. Copper bearing steel pipe can be furnished in the same weights and dimensions.

Size Inches	Per Foot	Diam., Inches External	Diam., Inches Internal	Thickness Inches	Wt., Lbs., per Ft. Plain End	Wt., Lbs., per Ft. Threaded and Coupled	No. of Threads per Inch
⅛	$.05½	.405	.269	.068	.244	.245	27
¼	.06	.540	.364	.088	.424	.425	18
⅜	.06	.675	.493	.091	.567	.568	18
½	.08½	.840	.622	.109	.850	.852	14
¾	.11½	1.050	.824	.113	1.130	1.134	14
1	.17	1.315	1.049	.133	1.678	1.684	11½
1¼	.23	1.660	1.380	.140	2.272	2.281	11½
1½	.27½	1.900	1.610	.145	2.717	2.731	11½
2	.37	2.375	2.067	.154	3.652	3.678	11½
2½	.58½	2.875	2.469	.203	5.793	5.819	8
3	.76½	3.500	3.068	.216	7.575	7.616	8
3½	.92	4.	3.548	.226	9.109	9.202	8
4	1.09	4.500	4.026	.237	10.790	10.889	8
5	1.48	5.563	5.047	.258	14.617	14.810	8
6	1.92	6.625	6.065	.280	18.974	19.185	8
8	2.88	8.625	7.981	*.322	28.554	28.809	8
10	4.12	10.750	10.020	*.365	40.483	41.132	8
12	5.07	12.750	12.	*.375	49.562	50.706	8

*These thicknesses correspond to the heaviest weights made of these sizes. Lighter weights—namely: 8 inches, 25 pounds; 10 inches, 32 pounds; 10 inches, 35 pounds; 12 inches, 45 pounds; can be furnished as heretofore when specified.

Steam, Gas and Water Pipe

Extra Strong and Double Extra Strong

Black and Galvanized

Revised January 1, 1930

Pipe will be furnished with plain ends and in random lengths unless otherwise ordered.

Randon length of extra strong and double extra strong pipe is considered to be 12 feet to 22 feet, and we reserve the right to supply 5% of the total order in lengths from 6 feet to 12 feet.

An extra charge will be made above plain ends for pipe fitted with threads only or with threads and couplings.

An extra charge will be made above random for cut lengths.

An extra charge will be made above black for galvanized or coated pipe.

Copper bearing steel pipe can also be furnished in the same weights and dimensions.

Extra Strong

Size Inches	Per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Weight Pounds per Foot Plain Ends
⅛	$.12	.405	.215	.095	.314
¼	.07½	.540	.302	.119	.535
⅜	.07½	.675	.423	.126	.738
½	.11	.840	.546	.147	1.087
¾	.15	1.050	.742	.154	1.473
1	.22	1.315	.957	.179	2.171
1¼	.30	1.660	1.278	.191	2.996
1½	.36½	1.900	1.500	.200	3.631
2	.50½	2.375	1.939	.218	5.022
2½	.77	2.875	2.323	.276	7.661
3	1.03	3.500	2.900	.300	10.252
3½	1.25	4.	3.364	.318	12.505
4	1.50	4.500	3.826	.337	14.983
5	2.08	5.563	4.813	.375	20.778
6	2.86	6.625	5.761	.432	28.573
8	4.34	8.625	7.625	.500	43.388
10	5.48	10.750	9.750	.500	54.735
12	6.55	12.750	11.750	.500	65.415

The permissible variation in weight is 5 per cent above and 5 per cent below.

Double Extra Strong

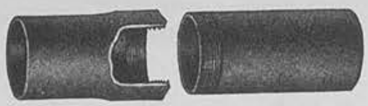
Size Inches	Per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Weight Pounds per Foot Plain Ends
½	$.32	.840	.252	.294	1.71
¾	.35	1.050	.434	.308	2.44
1	.37	1.315	.599	.358	3.659
1¼	.52½	1.660	.896	.382	5.214
1½	.65	1.900	1.100	.400	6.408
2	.91	2.375	1.503	.436	9.029
2½	1.37	2.875	1.771	.552	13.695
3	1.86	3.500	2.300	.600	18.583
3½	2.30	4.	2.728	.636	22.850
4	2.76	4.500	3.152	.674	27.541
5	3.86	5.563	4.063	.750	38.552
6	5.32	6.625	4.897	.864	53.160
8	7.25	8.625	6.875	.875	74.424

The permissible variation in weight is 10 per cent above and 10 per cent below.

Lap Welded Casing

For Water, Well and Irrigation Purposes

Screw and Socket Joint



Inserted Joint

Water well casing is made by the lap weld process in two styles of joints; screw and socket, and inserted.

The screw and socket joint requires both ends of the casing to be threaded and lengths are connected by means of a coupling.

The inserted joint is made by enlarging one end of each length of casing and tapping female thread, the other end being male thread of the same diameter.

All Weights and Dimensions are Nominal
Adopted January 1, 1919

Size In.	Per Ft.	Diam. Inches External	Diam. Inches Internal	Thick. Wall In.	No. Thds. per In.	Wt., Lbs. per Ft. Either Style Plain Ends	Wt., Lbs. per Ft. Screw and Socket Style Thds. and Couplings
2	$.33	2.25	2.05	.1	14	2.296	2.34
2¼	.33	2.5	2.284	.108	14	2.759	2.82
2½	.33	2.75	2.524	.113	14	3.182	3.25
2¾	.40	3	2.768	.116	14	3.572	3.65
3	.41	3.25	3.01	.12	14	4.011	4.1
3¼	.46	3.5	3.25	.125	14	4.505	4.6
3½	.51	3.75	3.492	.129	14	4.988	5.1
3¾	.565	4	3.732	.134	14	5.532	5.65
4	.62	4.25	3.974	.138	14	6.06	6.2
4¼	.685	4.5	4.216	.142	14	6.609	6.75
4½	.74	4.75	4.46	.145	14	7.131	7.25
4¾	.81	5	4.696	.152	14	7.87	8
5	.85	5.25	4.944	.153	14	8.328	8.5
5 3/16	.90	5.5	5.192	.154	14	8.792	9
5⅝	1.05	6	5.672	.164	14	10.222	10.5
6¼	1.20	6.625	6.287	.169	14	11.652	12
6⅝	1.35	7	6.652	.174	14	12.685	13
7¼	1.48	7.625	7.263	.181	14	14.39	14.75
7⅝	1.60	8	7.628	.186	11½	15.522	16
8¼	1.75	8.625	8.249	.188	11½	16.94	17.5
8⅝	1.90	9	8.608	.196	11½	18.429	19
9⅝	2.28	10	9.582	.209	11½	21.855	22.75
10⅝	2.68	11	10.552	.224	11½	25.78	26.75
11⅝	3.15	12	11.514	.243	11½	30.512	31.5
12½	3.65	13	12.482	.259	11½	35.243	36.5
13½	4.20	14	13.448	.276	11½	40.454	42
14½	4.75	15	14.418	.291	11½	45.714	47.5
15½	5.25	16	15.396	.302	11½	50.632	52.5

The permissible variation in weight is 5 per cent above and 5 per cent below.

Specify definitely whether screw and socket or inserted joint is wanted. Screw and socket type will be furnished unless otherwise specified.

Screw and socket furnished with threads and couplings and in random lengths unless otherwise ordered.

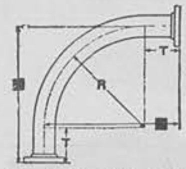
Inserted joint furnished threaded and in random lengths, unless otherwise ordered.

Thickness of walls makes it impracticable to cut threads of coarser pitch than shown on table.

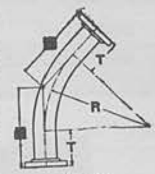
For cut lengths, an extra charge will be made above random.

For galvanized or coated casing, an extra charge will be made above black.

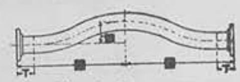
Pipe Bends Made from Lap Welded Pipe



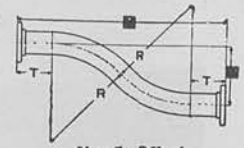
No. 1, Quarter Bend



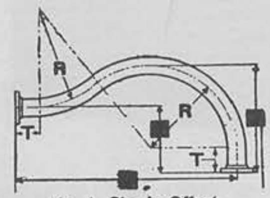
No. 3, 45° Bend



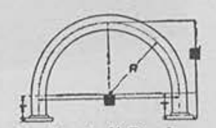
No. 4, Crossover



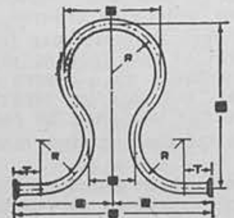
No. 5, Offset



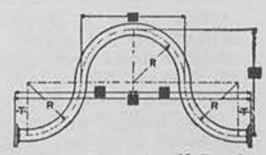
No. 2, Single Offset Quarter Bend



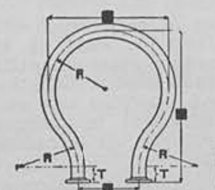
No. 7, U Bend



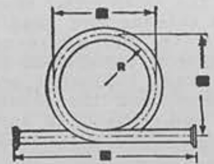
No. 10, Double Offset Expansion U Bend



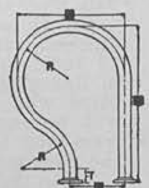
No. 9, Expansion U Bend



No. 8, Double Offset U Bend



No. 11, Circle Bend



No. 6, Single Offset U Bend

Size of Pipe Inches	R Minimum Advisable Radius of Bends Inches	Shortest Radius to Which Pipe Can Be Bent, Inches *Stand.	†XStrong	T—Minimum Length of Tangent or Straight Part, In Screwed and Shrunk	Steel Welded	Van Stone
2½	12½	10	7	4	.	.
3	15	12	8	4	5	6
3½	17½	14	10	5	5	6
4	20	16	12	5	5	6
4½	22½	18	14	6	5	6
5	25	20	15	6	5	7
6	30	26	20	7	6	7
7	35	30	24	8	6	8
8	40	34	28	9	6	8
9	45	42	35	11	6	9
10	50	45	40	12	7	10
12	60	54	50	14	7	10

Full dimension sketch or blue print should accompany all inquiries or orders for bends, also include dimensions R, T, and dimensions marked where necessary, and any other variations from above table.

Copper Content (Copper Bearing) Steel Pipe

Will last 20% longer than regular steel when continually exposed to atmospheric corrosion or alternate wet and dry. Same as regular steel pipe with .25% Copper added during refining.

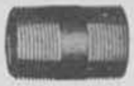
Genuine Wrought Iron Pipe

Will last 100% longer than regular steel where active corrosion agents exist. The pitting action is obstructed by slag barriers which are a normal content of Genuine Wrought Iron.

Both Steel Pipe and Wrought Iron Pipe available in standard sizes.

Prices on application.

Close Nipple



Short Nipple

Standard Wrought Pipe Nipples

Effective September 1, 1933

Lists apply to wrought steel, genuine wrought iron, copper bearing, and tank nipples.

For list of black nipples made from extra strong pipe, double the list of black nipples. For list of black nipples made from double extra strong pipe, multiply price of standard black nipples by 4. For list of galvanized nipples made from extra strong pipe, add list of standard black nipples to list of standard galvanized nipples.

For price on Butt Nipples add 20% to price of short nipples. For list of lengths not listed (under 12 inches) use list of next longer length. For list of lengths over 12 to 24 inches, compute price by adding nearest equal lengths.

*Tank nipples are 6 inches long, standard pipe thread on one end, American Standard Locknut Thread 4 inches long on other end.

Long Nipple

Black Right Hand Nipples—Each

Diam. In.	Length Inches Close	Length Inches Short	Close	Short	Long 2	2½	3	3½	Extra Long 4	4½	5	5½	*6	7	8	9	10	11	12
⅛	¾	1½	$.05	$.06	$.07	$.08	$.08	$.09	$.09	$.10	$.11	$.12	$.13	$.14	$.15	$.16	$.17	$.18	$.20
¼	⅞	1½	.05	.06	.07	.08	.08	.09	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.20
⅜	1	1½	.05	.06	.07	.08	.08	.09	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.20
½	1⅛	1½	.06	.07	.08	.09	.09	.10	.10	.11	.12	.13	.14	.15	.17	.19	.21	.23	.25
¾	1⅜	2	.08	.09	....	.10	.11	.12	.13	.14	.15	.16	.17	.19	.21	.23	.25	.27	.29
1	1½	2	.10	.11	....	.13	.14	.15	.16	.17	.18	.19	.20	.24	.27	.30	.32	.35	.38
1¼	1⅝	2½	.13	.15	....	....	.16	.18	.20	.22	.24	.26	.28	.32	.36	.40	.44	.48	.52
1½	1¾	2½	.16	.18	....	....	.20	.22	.25	.27	.29	.31	.34	.38	.43	.47	.52	.56	.60
2	2	2½	.21	.24	....	....	.28	.31	.34	.37	.40	.44	.48	.53	.59	.66	.78	.80	.87
2½	2½	3	.39	.45	....	....	....	.58	.63	.68	.73	.78	.85	.94	1.03	1.12	1.22	1.31	1.40
3	2⅝	3	.54	.59	....	....	....	.65	.73	.81	.89	.96	1.04	1.19	1.34	1.50	1.65	1.80	1.95
3½	2¾	4	.72	.98	....	....	....	....	....	1.06	1.14	1.21	1.29	1.45	1.61	1.76	1.92	2.08	2.24
4	2⅞	4	.92	1.12	....	....	....	....	....	1.28	1.38	1.48	1.60	1.80	2.00	2.20	2.40	2.60	2.80
4½	2⅞	4	1.35	1.60	....	....	....	....	....	1.75	1.90	2.10	2.25	2.50	2.75	3.00	3.25	3.50	3.75
5	3	4½	1.60	2.00	....	....	....	....	....	....	2.05	2.17	2.29	2.61	2.91	3.15	3.39	3.64	3.88
6	3⅛	4½	2.00	2.45	....	....	....	....	....	....	2.58	2.73	2.90	3.36	3.68	4.08	4.31	4.60	4.94
7	3¼	5	3.30	4.00	....	....	....	....	....	....	....	4.20	4.45	4.85	5.25	5.65	6.05	6.45	6.85
8	3½	5	4.30	4.87	....	....	....	....	....	....	....	5.00	5.44	5.71	6.10	6.48	6.85	7.25	7.65
9	3⅝	5	5.25	5.85	....	....	....	....	....	....	....	....	....	....	7.45	8.05	8.65	9.25	9.85
10	3⅞	5	5.88	6.50	....	....	....	....	....	....	....	....	....	....	8.00	8.55	9.10	9.65	10.20
12	4½	5	7.40	8.70	....	....	....	....	....	....	....	....	....	....	10.00	10.90	11.80	12.70	13.60

Black Right and Left Nipples—Each

Diam. In.	Length Inches Close	Length Inches Short	Close	Short	Long 2	2½	3	3½	Extra Long 4	4½	5	5½	*6	7	8	9	10	11	12
⅛	¾	1½	$.07	$.08	$.10	$.11	$.11	$.12	$.12	$.13	$.15	$.16	$.17	$.19	$.20	$.21	$.23	$.24	$.26
¼	⅞	1½	.07	.08	.10	.11	.11	.12	.12	.13	.15	.16	.17	.19	.20	.21	.23	.24	.26
⅜	1	1½	.07	.08	.10	.11	.11	.12	.12	.13	.15	.16	.17	.19	.20	.21	.23	.24	.26
½	1⅛	1½	.08	.10	.11	.12	.12	.13	.13	.15	.16	.17	.19	.20	.23	.25	.28	.30	.33
¾	1⅜	2	.11	.12	....	.13	.15	.16	.17	.19	.20	.21	.23	.25	.28	.30	.33	.36	.38
1	1½	2	.13	.15	....	.17	.19	.20	.21	.23	.24	.25	.26	.32	.36	.39	.42	.46	.50
1¼	1⅝	2½	.17	.20	....	....	.21	.24	.26	.29	.32	.34	.37	.42	.47	.52	.58	.63	.68
1½	1¾	2½	.21	.24	....	....	.26	.29	.33	.36	.38	.41	.45	.50	.56	.62	.68	.73	.78
2	2	2½	.28	.32	....	....	.37	.41	.45	.49	.52	.58	.63	.69	.77	.86	.95	1.04	1.14
2½	2½	3	.51	.59	....	....	....	.76	.82	.89	.95	1.02	1.11	1.23	1.34	1.46	1.59	1.71	1.82
3	2⅝	3	.71	.77	....	....	....	.85	.95	1.06	1.16	1.25	1.36	1.55	1.75	1.95	2.15	2.34	2.54
3½	2¾	4	.94	1.28	....	....	....	....	....	1.38	1.49	1.58	1.68	1.89	2.10	2.29	2.48	2.71	2.92
4	2⅞	4	1.20	1.46	....	....	....	....	....	1.67	1.80	1.93	2.08	2.34	2.60	2.86	3.12	3.38	3.64

Galvanized Right Hand Nipples—Each

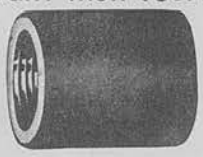
Diam. In.	Length Inches Close	Length Inches Short	Close	Short	Long 2	2½	3	3½	Extra Long 4	4½	5	5½	*6	7	8	9	10	11	12
⅛	¾	1½	$.07	$.08	$.10	$.11	$.12	$.13	$.14	$.15	$.16	$.17	$.19	$.22	$.25	$.28	$.30	$.33	$.36
¼	⅞	1½	.07	.08	.10	.11	.12	.13	.14	.15	.16	.17	.19	.22	.25	.28	.30	.33	.36
⅜	1	1½	.07	.08	.10	.11	.12	.13	.14	.15	.16	.17	.19	.22	.25	.28	.30	.33	.36
½	1⅛	1½	.08	.09	.11	.12	.13	.14	.15	.16	.17	.18	.20	.23	.26	.29	.32	.35	.38
¾	1⅜	2	.10	.12	....	.13	.14	.16	.18	.20	.22	.24	.26	.29	.32	.35	.39	.42	.45
1	1½	2	.13	.15	....	.18	.20	.22	.24	.26	.28	.30	.34	.38	.42	.46	.50	.54	.58
1¼	1⅝	2½	.17	.22	....	....	.26	.28	.30	.34	.37	.40	.44	.48	.53	.62	.68	.74	.80
1½	1¾	2½	.22	.26	....	....	.30	.34	.38	.42	.45	.48	.52	.58	.65	.73	.80	.87	.94
2	2	2½	.30	.35	....	....	.40	.45	.50	.55	.60	.65	.70	.79	.88	.97	1.06	1.15	1.24
2½	2½	3	.60	.66	....	....	....	.75	.83	.90	.98	1.06	1.14	1.28	1.44	1.60	1.76	1.92	2.08
3	2⅝	3	.80	.87	....	....	....	1.01	1.10	1.20	1.30	1.40	1.50	1.70	1.90	2.10	2.30	2.50	2.70
3½	2¾	4	1.15	1.40	....	....	....	....	....	1.53	1.65	1.78	1.91	2.16	2.41	2.66	2.91	3.16	3.41
4	2⅞	4	1.27	1.60	....	....	....	....	....	1.85	2.00	2.15	2.30	2.60	2.90	3.20	3.50	3.80	4.10
4½	2⅞	4	1.75	2.15	....	....	....	....	....	2.35	2.55	2.75	3.00	3.40	3.80	4.20	4.60	5.00	5.40
5	3	4½	2.29	2.87	....	....	....	....	....	....	3.01	3.21	3.40	3.95	4.35	4.73	5.12	5.52	5.90
6	3⅛	4½	2.86	3.56	....	....	....	....	....	....	3.79	4.03	4.30	5.00	5.52	6.03	6.53	7.05	7.54
7	3¼	5	4.10	5.35	....	....	....	....	....	....	....	5.70	6.05	6.75	7.45	8.15	8.85	9.55	10.25
8	3½	5	5.52	6.37	....	....	....	....	....	....	....	6.65	6.95	7.55	8.15	8.75	9.35	9.95	10.60

Galvanized Right and Left Nipples—Each

Diam. In.	Length Inches Close	Length Inches Short	Close	Short	Long 2	2½	3	3½	Extra Long 4	4½	5	5½	*6	7	8	9	10	11	12
⅛	¾	1½	$.12	$.13	$.16	$.18	$.18	$.20	$.20	$.21	$.24	$.26	$.28	$.31	$.32	$.34	$.35	$.39	$.42
¼	⅞	1½	.12	.13	.16	.18	.18	.20	.20	.21	.24	.26	.28	.31	.32	.34	.35	.39	.42
⅜	1	1½	.12	.13	.16	.18	.18	.20	.20	.21	.24	.26	.28	.31	.32	.34	.35	.39	.42
½	1⅛	1½	.13	.16	.18	.20	.20	.21	.21	.24	.26	.28	.31	.32	.35	.40	.45	.48	.53
¾	1⅜	2	.18	.20	....	.21	.24	.26	.28	.31	.32	.34	.35	.40	.45	.48	.53	.58	.61
1	1½	2	.21	.24	....	.28	.31	.32	.34	.35	.39	.40	.42	.52	.58	.63	.68	.74	.80
1¼	1⅝	2½	.28	.32	....	....	.34	.39	.42	.47	.52	.55	.60	.68	.76	.84	.93	1.01	1.09
1½	1¾	2½	.34	.39	....	....	.42	.47	.53	.58	.61	.66	.72	.80	.90	1.00	1.09	1.17	1.25
2	2	2½	.45	.52	....	....	.60	.65	.72	.79	.84	.93	1.01	1.11	1.24	1.38	1.52	1.67	1.83
2½	2½	3	.82	.95	....	....	....	1.22	1.32	1.43	1.52	1.64	1.78	1.97	2.15	2.34	2.55	2.74	2.92
3	2⅝	3	1.14	1.24	....	....	....	1.33	1.52	1.70	1.86	2.00	2.18	2.48	2.80	3.12	3.44	3.75	4.07
3½	2¾	4	1.51	2.05	....	....	....	....	....	2.19	2.39	2.53	2.69	3.03	3.36	3.67	3.97	4.34	4.68
4	2⅞	4	1.92	2.34	....	....	....	....	....	2.68	2.88	3.09	3.33	3.75	4.16	4.48	5.00	5.41	5.83

Nipples from extra strong pipe at double above list.

WROUGHT IRON COUPLINGS



Size In.	Lgth In.	Av. Wt. Lbs.	Threads per In.	Price, Each Blk.	Galv.	R. and L. Blk.
1/8	15/16	.03	27	.05	.06	....
1/4	1 1/32	.07	18	.05	.06	.07
3/8	1 5/32	.11	18	.06	.08	.08
1/2	1 5/16	.15	14	.07	.10	.11
3/4	1 9/16	.25	14	.10	.13	.15
1	1 13/16	.42	11 1/2	.13	.18	.20
1 1/4	2 1/16	.60	11 1/2	.17	.25	.25
1 1/2	2 5/16	.81	11 1/2	.21	.32	.30
2	2 9/16	1.18	11 1/2	.28	.40	.50
2 1/2	2 7/8	1.70	8	.40	.55	.85
3	3 1/16	2.45	8	.60	.80	1.20
3 1/2	3 7/16	3.40	8	.80	1.05	1.60
4	3 7/8	3.50	8	1.00	1.40	2.00
5	4 1/8	8.50	8	1.65	2.25	....
6	4 1/8	9.70	8	2.40	3.25	....
8	4 5/8	13.60	8	4.25	....	....
10	6 1/8	31.10	8	7.50	....	....
12	6 1/8	44.20	8	10.00	....	....

Extra Heavy Couplings

Double Standard List plus 10% for recessed.

RADIATOR PLUGS

Size In.	Price Each
1 1/4	$.10
1 1/2	.14
2	.20

McDaniel Suction Tees

CAST IRON

Standard for 100 Pounds Pressure

Extra Heavy for 250 Pounds Pressure

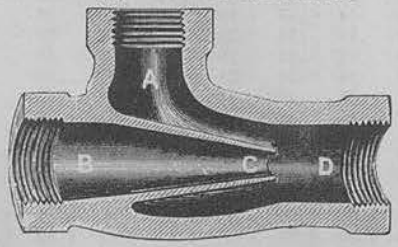


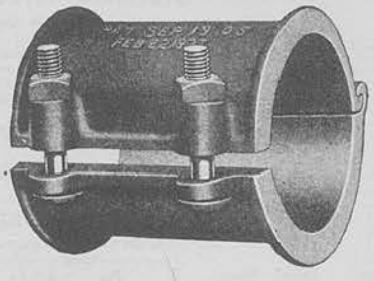
Fig. R8766. Suction Tee

The suction Tee can be used to advantage in making all connections on heating jobs. Where condensation returns to the boilers, put it on wherever two returns come together.

Wherever two returns back up on another, it will stop the same by using the shortest one, getting its steam first at B, and the other and weaker one at A. By this means the stronger one will act as an ejector and cause the weaker one to circulate freely. All can then be connected at D, and carried on to the main waste or return.

Size.....Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Standard for 100 Lbs. Pressure.....Each	1.50	1.50	2.00	2.25	2.75	3.50	5.50	8.00
Extra Heavy for 250 Lbs. Pressure.....Each	....	....	3.50	4.50	5.50	7.50	11.00	16.00

Emergency Pipe Clamps



For stopping leaks in pipe lines. It is a malleable iron cylinder, halved, hinged along one side and fitted with bolts on the other. A gasket completes the clamp. It is by concentration of pressure on the leak that this clamp makes a positive permanent repair.

Owing to the long open hinge, the two halves of the clamp may be slid together along the pipe so as to assemble the clamp when crowded for room.

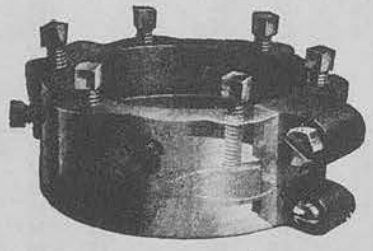
Packed 12 to a carton, 1/2 to 2-inch sizes, and 6 to a carton, 2 1/2 to 4-inch sizes. For the larger sizes of pipe, clamps are reinforced with heavy ribs, which insure security under high pressure. Specify when O.D. or cast iron pipe sizes.

Size Pipe In.	Lgth. Overall In.	Wt., Lbs. per Doz.	Price Each	Size Pipe In.	Lgth. Overall In.	Wt., Lbs. per Doz.	Price Each
1/2	3 1/4	10	$.60	1 1/2	4	23	$1.05
3/4	3 1/4	13	.68	2	4 1/4	32	1.20
1	3 1/2	15	.75	2 1/2	4 1/2	39	1.50
1 1/4	3 3/4	20	.90	3	5	51	1.88

Size Pipe In.	Lgth. Overall In.	No. Bolts	Wt. Lbs.	Price Each	Size Pipe In.	Lgth. Overall In.	No. Bolts	Wt. Lbs.	Price Each
3 1/2	5 1/2	2	6	$2.25	8	9 1/2	3	30	$12.00
4	6	2	7 1/2	3.00	*8	9 1/2	3	32	12.00
*4	6 1/2	2	8 1/2	5.25	9	10	3	34	13.50
4 1/2	6 1/2	2	8 1/2	5.25	10	12	4	45	15.00
5	7	3	10	7.50	*10	12	4	48	15.00
6	8	3	14	9.00	12	12	4	57	18.00
*6	8	3	15	9.00	*12	12	4	59	18.00
7	9	3	18	10.50	...	....	.	..	.....

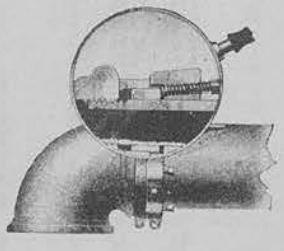
*Cast iron.

Skinner Pipe Joint Clamps



Repairs leaks where pipe is screwed into fitting. The entire thrust is against the packing and the lip on the gasket container ring guides the packing squarely into the threads.

Made of malleable iron, elastic enough to accommodate vibration and expansion, heavy enough to withstand the highest pressures. A positive permanent repair on steam, oil, gas, hot or cold water, air, ammonia or brine.



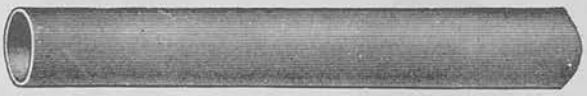
Painted to resist rust. Made in halves held together by cap screws.

Packed in cartons.

I.D. Pipe Inches	Each	Wt. Lbs.	I.D. Pipe Inches	Each	Wt. Lbs.	O.D. Pipe Inches	Each	Wt. Lbs.
1/2	$1.50	1 1/4	5 or 5 3/16 Casing	$7.50	6	12 1/2 Cas. 13 O. D.	$27.50	20
3/4	1.50	1 1/4						
1	1.50	1 1/2	6	9.00	6 1/2	14	31.50	23
1 1/4	1.90	1 1/2	6 5/8 or 7 O.D.	10.50	7	15	33.75	26
1 1/2	2.25	1 1/2				16	36.00	27
2	3.00	2	7	10.50	8	18	40.50	30
2 1/2	3.75	2 1/4	8 O.D.	13.00	11	20	45.00	42
3	4.50	4	8	13.00	12	22	55.00	55
3 1/2	5.25	4 1/2	9	15.75	13 1/2	24	65.00	65
4	6.00	4 3/4	10	18.75	15	.....	.....	..
4 1/2	6.75	5 1/4	12	22.50	18	.....	.....	..

Seamless Brass and Copper Pipe

Iron Pipe Sizes



Regular

Standard Pipe Size Inches	Diameter, Inches Outside	Inside	Thickness Inches	Weight, per Foot Pounds Brass	Copper
1/8	.405	.281	.062	.246	.259
1/4	.540	.375	.083	.437	.460
3/8	.675	.494	.090	.612	.643
1/2	.840	.625	.107	.911	.957
3/4	1.050	.822	.114	1.240	1.300
1	1.315	1.062	.126	1.740	1.830
1 1/4	1.660	1.368	.146	2.560	2.690
1 1/2	1.900	1.600	.150	3.040	3.200
2	2.375	2.062	.157	4.020	4.230
2 1/2	2.875	2.500	.188	5.830	6.140
3	3.500	3.062	.219	8.310	8.750
3 1/2	4.000	3.500	.250	10.850	11.410
4	4.500	4.000	.250	12.290	12.940
4 1/2	5.000	4.500	.250	13.740	14.460
5	5.563	5.062	.250	15.400	16.210
6	6.625	6.125	.250	18.440	19.410
7	7.625	7.062	.282	23.920	25.170
8	8.625	8.000	.313	30.050	31.630

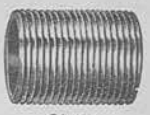
Extra Heavy

1/8	.405	.205	.100	.353	.371
1/4	.540	.294	.123	.593	.624
3/8	.675	.421	.127	.805	.847
1/2	.840	.542	.149	1.190	1.250
3/4	1.050	.736	.157	1.620	1.710
1	1.315	.951	.182	2.390	2.510
1 1/4	1.660	1.272	.194	3.300	3.460
1 1/2	1.900	1.494	.203	3.990	4.190
2	2.375	1.933	.221	5.510	5.790
2 1/2	2.875	2.315	.280	8.410	8.840
3	3.500	2.892	.304	11.240	11.820
3 1/2	4.000	3.358	.321	13.670	14.370
4	4.500	3.818	.341	16.410	17.250
4 1/2	5.000	4.250	.375	20.070	21.100
5	5.563	4.813	.375	22.520	23.670
6	6.625	5.750	.437	31.320	32.930
7	7.625	6.625	.500	41.230	43.340
8	8.625	7.625	.500	47.020	49.420

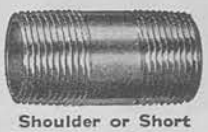
We are in position to supply many items not shown in this catalogue and shall be pleased to receive your inquiries.

Brass Nipples

Iron Pipe Size



Close



Shoulder or Short

The term "short nipples" is used to describe nipples of the next size longer than "close".

"Shoulder nipples" is understood to have the same meaning as "short."

"Space nipples" and "long nipples" describe nipples longer than the short or shoulder nipples.

Length Inches	Each — Diameter, Inches 1/8	1/4	3/8	1/2	3/4	1	1 1/4
3/4	$.11	....	....	....	....	....	....
7/8	....	$.13	....	....	....	....	....
1	....	....	$.15	....	....	....	....
1 1/8	....	....	....	$.23	....	....	....
1 3/8	....	....	....	....	$.28	....	....
1 1/2	.13	.16	.19	.25	....	$.37	....
1 5/8	....	....	....	....	....	....	$.60
2	.15	.19	.23	.30	.35	.44	....
2 1/2	.17	.22	.27	.35	.42	.53	.75
3	.19	.25	.31	.40	.49	.62	.88
3 1/2	.21	.28	.35	.45	.56	.71	1.01
4	.23	.31	.39	.50	.63	.80	1.14
4 1/2	.25	.34	.43	.55	.70	.89	1.27
5	.27	.37	.47	.60	.77	.98	1.40
5 1/2	.29	.40	.51	.65	.84	1.07	1.53
6	.31	.43	.55	.70	.91	1.16	1.66

Length Inches	Each — Diameter, Inches 1 1/2	2	2 1/2	3	3 1/2	4
1 3/4	$.70	....	....	....	....	....
2	....	$1.00	....	....	....	....
2 1/2	.90	1.20	$1.70	$2.50	....	....
2 5/8	....	....	....	....	....	....
2 3/4	....	....	....	....	$4.00	....
2 7/8	....	....	....	....	....	....
3	1.05	1.40	2.00	2.90	....	$4.75
3 1/2	1.20	1.60	2.30	3.30	....	....
4	1.35	1.80	2.60	3.70	5.40	6.15
4 1/2	1.50	2.00	2.90	4.10	6.00	6.85
5	1.65	2.20	3.20	4.50	6.60	7.55
5 1/2	1.80	2.40	3.50	4.90	7.20	8.25
6	1.95	2.60	3.80	5.30	7.80	8.95

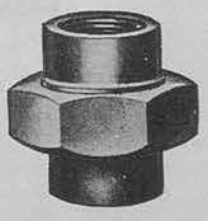
Finished Brass Nipples longer than close	Add 25%
Nickel Plated	Add 50%
Chrome Plated	Add 80%

Standard Brass Unions

Ground Joints

For 150 Pounds Steam Working Pressure

Size In.	Each — Rough	Semi-Fin.	Polished	N. P.	C. P.
1/8	$.40	$.45	$.50	$.60	$.72
1/4	.50	.55	.60	.72	.87
3/8	.65	.75	.85	1.02	1.23
1/2	.85	.95	1.05	1.26	1.51
3/4	1.15	1.30	1.40	1.68	2.02
1	1.60	1.75	1.90	2.28	2.74
1 1/4	2.25	2.50	2.75	3.30	3.96
1 1/2	2.70	3.00	3.25	3.90	4.68
2	4.00	4.50	5.00	6.00	7.20
2 1/2	7.50	8.25	9.00	10.80	12.96
3	11.50	12.75	14.00	16.80	20.16
3 1/2	.....	22.50	25.00	30.00	36.00
4	.....	30.00	33.00	39.50	47.50



Prices for acid-resisting metal upon application.

Rough Brass Screwed Fittings

Iron Pipe Size

For 125 Pounds Steam Working Pressure

Y Bend

90° Elbow

45° Elbow

Tee

Cross

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4
Elbows, 90°.....	$.12	$.15	$.20	$.28	$.40	$.63	$.90
" Reducing	*	.19	.25	.35	.50	.80	1.10
" 45°	.16	.20	.25	.31	.40	.63	.90
" Street	.25	.27	.33	.48	.63	.85	1.50
" Drop, Female ..	...	...	.35	.45	.65	1.05	1.50
" Side Outlet....	...	...	.60	.85	1.20	1.90	2.75
Tees	.17	.21	.28	.40	.55	.85	1.25
" Reducing	*	.25	.35	.50	.70	1.05	1.55
" Drop, Female.....	...	...	.43	.57	.80	1.25	....
" 4-way	...	...	...	1.20	1.65	2.50	3.75
Crosses.....	.25	.30	.40	.55	.80	1.25	1.80
" Reducing	*	.38	.50	.70	1.00	1.55	2.25
Bushings, Regular	...	.10	.12	.15	.22	.35	.50
" Face	...	.12	.15	.19	.27	.44	.62
Plugs, Regular	.08	.10	.12	.15	.20	.30	.45
" Solid.....	...	.16	.18	.22	.30	.45	.80
" Countersunk.....	...	...	...	.22	.30	.45	.65
Caps	.10	.13	.16	.20	.30	.42	.60
Locknuts.....	.10	.10	.12	.15	.20	.28	.40
Reducers	...	.15	.20	.28	.40	.60	.90
Couplings	.10	.13	.17	.25	.37	.55	.80
" R. and L....	.13	.17	.22	.30	.45	.70	1.00
Return Bends, Closed...	...	...	.55	.70	1.00	1.25	1.80
" " Open ...	...	...	.60	.80	1.10	1.40	2.15
Y Bends.....	...	...	...	.75	1.10	1.65	2.50

Brass fittings can also be furnished polished or plated at an advance in price.

Size.....inches	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90°.....	$1.20	$2.00	$3.50	$6.00	$8.00	$10.00
" Reducing.....	1.50	2.50	4.25	7.50	10.00	12.50
" 45°.....	1.20	2.00	3.50	6.00	8.00	10.00
" Street	2.00	3.25	6.00	10.00	.....	.....
" Drop, Female..	2.00	3.40	.....	.....	.....	.....
" Side Outlet ...	3.60	6.00	10.50	18.00	.....	.....
Tees.....	1.70	2.80	5.00	8.50	11.00	14.00
" Reducing.....	2.10	3.50	6.25	10.50	14.00	17.50
" 4-way.....	5.00	8.50	.....	.....	.....	.....
Crosses.....	2.40	4.00	7.00	12.00	16.00	20.00
" Reducing	3.00	5.00	8.75	15.00	20.00	25.00
Bushings, Regular	.70	1.00	1.50	2.50	3.75	5.00
" Face	.87	1.25	1.85	3.10	4.75	6.25
Plugs, Regular	.60	.95	1.50	2.25	3.75	5.00
" Solid.....	1.20	1.90	3.00	4.50	7.50	10.00
" Countersunk ...	.90	1.40	.....	.....	.....	.....
Caps	.80	1.25	2.50	3.50	5.50	7.00
Locknuts	.55	.80	1.75	2.75	4.00	5.00
Reducers	1.10	1.75	2.75	4.00	6.00	8.00
Couplings	1.00	1.60	2.50	3.50	5.25	7.00
" R. and L....	1.30	2.00	3.10	4.50	.....	.....
Return Bends, Closed..	2.50	4.25	7.00	10.00	.....	.....
" " Open...	3.00	4.75	8.25	11.00	.....	.....
Y Bends	3.30	5.50	9.50	16.00	.....	26.00

Right and left elbows and right and left return bends furnished at an advance of 25 per cent over above list.

*Elbows, tees, crosses, bushings and reducers, reducing more than two sizes, will be furnished at an advance of 25 per cent over above reducing list prices.

PLAIN PATTERN RAILING FITTINGS

Elbow

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.11	2	$.44
1	.14	2 1/2	.80
1 1/4	.22	3	1.10
1 1/2	.27	...	....

Tee, Side Outlet

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.28	2	$1.15
1	.37	2 1/2	2.00
1 1/4	.57	3	2.90
1 1/2	.72	...	.....

Elbow, Side Outlet

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.22	2	$.88
1	.28	2 1/2	1.60
1 1/4	.44	3	2.20
1 1/2	.55	...	....

Cross

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.20	2	$.77
1	.25	2 1/2	1.40
1 1/4	.38	3	1.95
1 1/2	.48	...	....

Tee

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.14	2	$.57
1	.19	2 1/2	1.00
1 1/4	.28	3	1.45
1 1/2	.36	...	....

Cross—Side Outlet

Size Inches	Price, Each Black	Size Inches	Price, Each Black
3/4	$.35	2	$1.45
1	.46	2 1/2	2.50
1 1/4	.70	3	3.65
1 1/2	.90	...	.....

Fittings larger than 2-inch are made to order only.

Railing fittings will be furnished tapped right-hand or, in the case of tees and crosses, right and left on run, and acorns right-hand or left-hand at regular prices; tapped otherwise will be charged at 15% additional net.

Adjustable Malleable Iron Railing Fittings

No. 70 Elbows

Size Inches	Price Each	Size Inches	Price Each
1	$1.10	1½	$1.70
1¼	1.25	2	2.25

No. 70½ Special Elbows

Size Inches	Price Each	Size Inches	Price Each
1	$.80	1½	$1.20
1¼	.90	2	1.65

No. 71 Tees

Size Inches	Price Each	Size Inches	Price Each
1	$1.30	1½	$2.00
1¼	1.50	2	2.50

No. 72 Stair Tees

Size Inches	Price Each	Size Inches	Price Each
1	$1.30	1½	$2.15
1¼	1.60	2	2.50

No. 73 Crosses

Size Inches	Price Each	Size Inches	Price Each
1	$1.50	1½	$2.35
1¼	1.75	2	2.75

No. 74 Stair Crosses

ize ches	Price Each	Size Inches	Price Each
1	$1.50	1½	$2.50
1¼	1.85	2	2.75

No. 75 Stair Landing Tees

Size Inches	Price Each	Size Inches	Price Each
1	$.90	1½	$1.50
1¼	1.10	2	2.15

No. 76 Stair Landing Crosses

Size Inches	Price Each	Size Inches	Price Each
1	$1.00	1½	$1.60
1¼	1.20	2	2.40

No. 79 Flanges

Size Inches	Price Each	Size Inches	Price Each
1	$1.65	1½	$1.90
1¼	1.75	2	2.50

Add 50 per cent to above prices for galvanized railing fittings.

All openings are furnished tapped right hand. When ordered tapped otherwise, they will be charged 15 per cent additional net.

Malleable Iron Railing Fittings

No. 1 Elbows

R. H.

R. H.

Size Inches	Price Each	Size Inches	Price Each
½	$.15	2	$.72
¾	.18	2½	1.60
1	.20	3	2.25
1¼	.35	4	4.50
1½	.45	...	....

No. 2 Side Outlet Elbows

Size Inches	Price Each	Size Inches	Price Each
½	$.20	2	$.75
¾	.23	2½	1.75
1	.25	3	2.50
1¼	.40	4	5.00
1½	.50	...	....

R. H.

R. H.

R. H.

R. H.

L. H.

R. H.

No. 3 Tees

Size Inches	Price Each	Size Inches	Price Each
½	$.20	2	.80
¾	.23	2½	1.75
1	.25	3	2.50
1¼	.40	4	5.00
1½	.50	...	....

No. 4 Side Outlet Tees

Size Inches	Price Each	Size Inches	Price Each
½	$.30	2	1.00
¾	.33	2½	1.90
1	.35	3	2.60
1¼	.45	4	5.25
1½	.58	...	....

R. H.

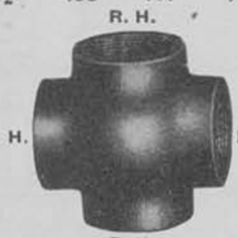
L. H.

R. H.

R. H.

R. H.

L. H.



R. H.

R. H.

No. 5 Crosses

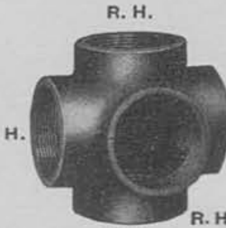
Size Inches	Price Each	Size Inches	Price Each
½	$.30	2	$ .90
¾	.33	2½	1.80
1	.35	3	2.60
1¼	.45	4	5.25
1½	.55	...	....

No. 6 Side Outlet Crosses

Size Inches	Price Each	Size Inches	Price Each
½	$.35	2	$1.35
¾	.38	2½	2.00
1	.40	3	2.75
1¼	.50	4	5.50
1½	.65	...	....

R. H.

R. H.



R. H.

R. H.

R. H.

R. H.

No. 7 Square Floor Flanges

Size Inches	Price Each	Size Inches	Price Each
½	$.16	2	$.90
¾	.18	2½	1.35
1	.20	3	2.50
1¼	.40	4	5.00
1½	.50	...	....

No. 8 Ball Ornaments

Size Inches	Price Each	Size Inches	Price Each
½	$.16	2	$.90
¾	.18	2½	1.35
1	.20	3	2.50
1¼	.25	4	5.00
1½	.35	...	....

L. H.

For galvanized railing fittings, add 50 per cent to above prices. In ordering, specify number and size.

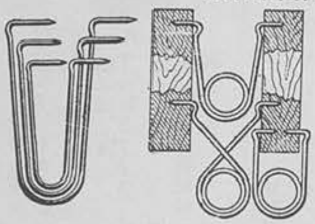
SOLID RING PIPE HANGERS
REGULAR

Size Inches	Price, per 100 Plain	Galvanized
½	5.00	6.50
¾	5.80	7.00
1	7.75	9.00
1¼	10.00	12.00

TINNED PIPE STRAPS

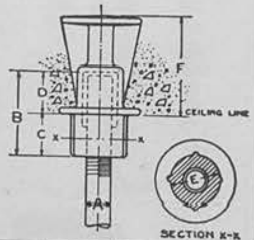
Size........inches	¼	⅜	½	¾
100 Pieces, Weight ....pounds	1½	1¾	2½	3½
Price...per pound	.30	.30	.30	.30
Size........inches	1	1¼	1½	2
100 Pieces, Weight ....pounds	5	7¾	10	11½
Price...per pound	.30	.30	.30	.30

WIRE PIPE HOOKS



Pipe Size	Length	Price per 100
½"	6"	2.00
¾"	6"	2.50
1"	6"	3.00

Screw Inserts
Cast Iron



Insert No.	Pipe Size Inches	Price Each	A	B	C	D	E	F
1	¾–2	.08	⅜	1½	⅞	⅝	⅞	2
2	2½–3½	.08	½	1¾	⅞	⅞	1	2
3	4 –5	.14	⅝	1⅞	⅞	1	1⅛	2
4	6 –7	.18	¾	2¼	⅞	1⅜	1 9/16	2½
5	8 –12	.24	⅞	2¼	⅞	1⅜	1 9/16	2½

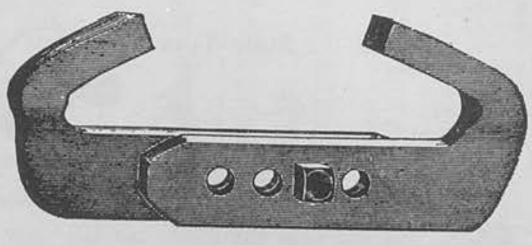
EXPANSION PIPE HANGERS

Size Inches	Tapped for Pipe Inches	Complete Price Each	Parts-Price, Each Plate	Buttons	Rings
½	¼	$.17	$.08	$.06	$.08
¾	⅜	.17	.08	.06	.08
1	⅜	.18	.08	.06	.12
1¼	⅜	.19	.08	.06	.15
1½	⅜	.25	.09	.07	.20
2	⅜	.29	.09	.07	.25
2½	½	.36	.10	.08	.30
3	½	.44	.10	.08	.40
3½	½	.55	.10	.08	.50
4	½	.63	.10	.08	.60
5	¾	1.12	.10	.08	1.00
6	¾	1.35	.10	.08	1.25
8	¾	2.25	.10	.08	2.15

Above prices do not include such parts as pipe, rod, or turn buckles. If desired these will be furnished at extra price.

STEEL DROP FORGED I BEAM CLAMP

(Adjustable from 1 to 6½ inches)



List Price, Each

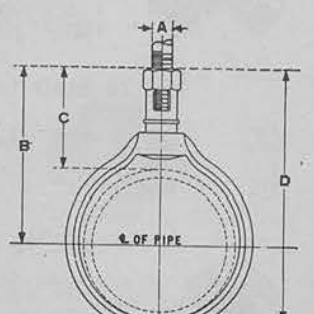
No. 1	For Pipe, ½ to 1½ inclusive	$0.25
No. 2	For Pipe, 2 to 3 inclusive	.30
No. 3	For Pipe, 3½ to 6 inclusive	.35
No. 4	For Pipe, 7 to 8 inclusive	.50
No. 5	For Pipe, 9 to 12 inclusive	.70

HANGERS
Grinnell Adjustable Swivel Rings
Malleable Iron

Fig. No. 101

LIST PRICES AND DIMENSIONS

Pipe Size Inches	Price Each	A	B	C	D
¾	.18	⅜	2½	2	3⅛
1	.20	⅜	2¾	2	3⅜
1¼	.21	⅜	2⅞	2⅛	3¾
1½	.22	⅜	3	2⅛	4
2	.24	⅜	3¼	2⅛	4½
2½	.34	½	3¾	2⅜	5¼
3	.42	½	4⅛	2⅜	5⅞
3½	.44	½	4⅜	2⅜	6⅜
4	.56	⅝	5⅜	3⅛	7⅝
4½	.62	⅝	5½	2⅞	7⅞
5	.70	⅝	5¾	3	8½
6	1.08	¾	7	3¾	10⅜
7	1.75	¾	7¾	4	11⅝
8	1.92	⅞	8⅞	4½	13¼



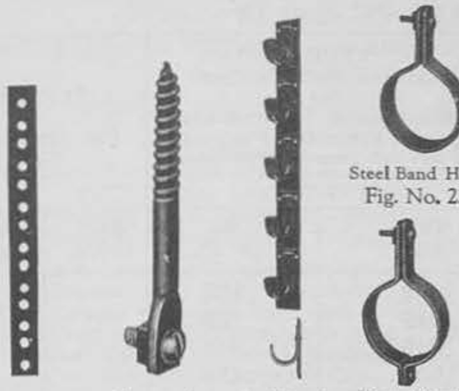
The Adjustable Swivel Ring can be used with Coach Screw Rod or with Machine Threaded Rod in connection with practically any type of Ceiling Flange, Expansion Case, Insert, etc.

The unusual feature of this ring is the Swivel Shank allowing an adjustment of about two inches by simply turning the nut on the shank to the left or right. No temporary support of the pipe line is necessary while making adjustments.

Although the ring and shank are two separate pieces, they are cast as one unit. The swivel shank automatically locks when pipe is in desired position. This locking prevents loosening due to vibration and assures proper pitch of the Line at all times.

HANGERS

Steel Pipe Hangers



Extension Bar Fig. No. 239 · Flattened Lag Screw Fig. No. 240 · Steel Hook Plate Fig. No. 241 · Hinged Steel Band Hanger Fig. No. 238 · Steel Band Hanger Fig. No. 237

LIST PRICES—Fig. Nos. 237, 238

Pipe Size, Inches	½	¾	1	1¼	1½	2	2½	3	3½
Fig.No.237. Each	$0.14	.14	.16	.18	.20	.22	.24	.26	.30
Fig.No.238. Each	$0.17	.17	.19	.21	.23	.25	.27	.29	.33
Pipe Size, Inches	**4**	**4½**	**5**	**6**	**7**	**8**	**9**	**10**	**12**
Fig.No.237. Each	$0.32	.34	.36	.40	.63	.88	1.13	1.38	1.88
Fig.No.238. Each	$0.35	.37	.39	.43	.68	.93	1.15	1.45	1.95

LIST PRICES—Fig. Nos. 239, 240

Size.................Number	1	2	3	4	5
Pipe Size.............Inches	½–1½	2–3	3½–6	7–8	9–12
Price, Fig. No. 239...Per Foot	$0.08	.09	.12	.20	.28
Price, Fig. No. 240......Each	$0.10	.12	.14	.20	.25

LIST PRICES—Fig. No. 241

Pipe Size..................Inches	1	1¼	1½	2
Price....................per Strip	$2.50	3.25	3.75	4.25
No. of Hooks............per Strip	30	30	25	20

Extension Bars, Fig. No. 239, are furnished in 10-ft. lengths. Can easily be cut to any desired length.

Steel Hook Plates, Fig. No. 241, are furnished in strips As many hooks as desired can easily be cut off at ribs shown.

Grinnell Split Pipe Rings

Malleable Iron

Split Pipe Ring Fig. No. 108

Split Pipe Ring With Socket
Pipe Thread—Fig. No. 107
Rod Thread—Fig. No. 107-R

Socket for Split Pipe Ring
Pipe Thread—Fig. No. 110
Rod Thread—Fig. No. 110-R

LIST PRICES

Pipe Size Inches	Ring Only	Ring and Socket		Socket Only		Socket Tapped	
	Fig. No. 108	Pipe Thread Fig. No. 107	Rod Thread Fig. No. 107-R	Pipe Thread Fig. No. 110	Rod Thread Fig. No. 110-R	Pipe Thread Size Inches	Rod Thread Size Inches
½	.08	.10	.10	.08	.08	⅛	⅜
¾	.10	.12	.12	.08	.08	⅛	⅜
1	.10	.12	.12	.08	.08	⅛	⅜
1¼	.12	.14	.14	.10	.08	¼	⅜
1½	.14	.16	.16	.10	.08	¼	⅜
2	.16	.18	.18	.10	.08	¼	⅜
2½	.20	.22	.22	.10	.10	¼	½
3	.25	.28	.28	.10	.10	¼	½
3½	.40	.43	.43	.12	.10	⅜	½
4	.50	.53	.53	.12	.12	⅜	⅝
4½	.55	.58	.58	.12	.12	⅜	⅝
5	.60	.63	.63	.15	.12	½	⅝
6	.80	.82	.82	.15	.15	½	¾
7	1.10	1.12	1.12	.15	.15	½	¾
8	1.30	1.32	1.32	.15	.15	½	⅞

Socket Fig. No. 110 is furnished tapped for pipe thread as given in the table. Socket Fig. No. 110-R is furnished tapped for rod thread as given in table. These sockets are used in connection with Fig. No. 108 Split Pipe Ring

Grinnell Split Rings

Malleable Iron

Split Ring with Socket
and Ceiling Flange Pipe Threaded
Fig. No. 127

Split Ring with Socket and
Pipe Thr'd Coach Screw—Fig. No. 109
Rod Thr'd Coach Screw—Fig. No. 109-R

LIST PRICES AND DIMENSIONS

Pipe Size	List Prices		Fig. No. 127 Tapped Pipe Size	Fig. No. 109		Fig. No. 109-R	
	Fig. No. 127	Fig. Nos. 109 109-R		Pipe Thread Size	Length of Coach Screw	Rod Size	Length of Rod
Inches	Each	Each	Inches	Inches	Inches	Inches	Inches
½	.15	.15	⅛	⅛	3½	⅜	3½
¾	.18	.18	⅛	⅛	3½	⅜	3½
1	.18	.18	⅛	⅛	3½	⅜	3½
1¼	.20	.20	¼	¼	3½	⅜	3½
1½	.22	.22	¼	¼	3½	⅜	3½
2	.25	.25	¼	¼	3½	⅜	3½
2½	.30	.30	¼	¼	3½	½	3½
3	.35	.35	¼	¼	3½	½	3½
3½	.50	.50	⅜	⅜	5	½	3½
4	.60	.60	⅜	⅜	5	⅝	5
4½	.65	.65	⅜	⅜	5	⅝	5
5	.70	.70	½	½	5	⅝	5
6	.90	.90	½	½	5	¾	5
7	1.20	1.20	½	½	5	¾	5
8	1.40	1.40	½	½	5	⅞	5

Fig. No. 127 is a combination of Split Pipe Ring with Socket, Fig. No. 107 and Ceiling Flange, Fig. No. 128. The nipple is not included in above list prices. Fig. No. 109 is a combination of Split Pipe Ring, Fig. No. 107 and Pipe Threaded Coach Screw, Fig. No. 111. Fig. No. 109-R is a combination of Split Pipe Ring with socket and Machine Threaded Coach Screw Rod, Fig. No. 142.

Copper Pipe

SIZE		TYPE M (Hard Temper) for General Plumbing Purposes with Soldered Fittings Only 20 ft. Straight Lengths		TYPE L (Hard or Soft Temper) for General Plumbing Purposes Hard and Soft Temper—20 ft. Lengths—Soft Temper up to 1¼" also in 30 and 60 ft. Coils		TYPE K (Hard or Soft Temper) for Underground Services and General Plumbing Purposes Hard and Soft Temper—20 ft. Lengths Soft Temper up to 1¼" also 33 and 66 ft. Coils		TYPE O For Industrial Use	
Nom. Size Ins.	O.D.	Wall Thick.	Wt. per Ft.	Wall Thick.	Wt. per Ft.	Wall Thick.	Wt. per Ft.	Wall Thick.	Wt. per Ft.
¼	.375	.025	.106			.032	.134		
⅜	.500	.025	.144	.035	.198	.049	.269		
½	.625	.028	.203	.040	.284	.049	.344		
⅝	.750					.049	.418		
¾	.875	.032	.328	.045	.454	.065	.641		
1	1.125	.035	.464	.050	.653	.065	.839		
1¼	1.375	.042	.681	.055	.882	.065	1.04		
1½	1.625	.049	.94	.060	1.14	.072	1.36		
2	2.125	.058	1.46	.070	1.75	.083	2.06		
2½	2.625	.065	2.03	.080	2.48	.095	2.92		
3	3.125	.072	2.68	.090	3.33	.109	4.00	.049	1.834
3½	3.625	.083	3.58	.100	4.29	.120	5.12		
4	4.125	.095	4.66	.110	5.38	.134	6.51	.058	2.87
5	5.125	.109	6.66	.125	7.61	.160	9.67	.065	4.00

Prices upon application.

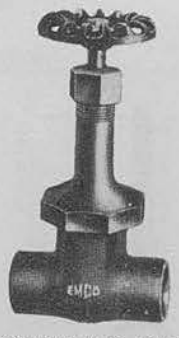
WE RECOMMEND

Types M and L in Hard Temper for operating pressures up to 250 Pounds.
Type K in Hard Temper for operating pressures up to 400 Pounds.
Type K in Soft Temper for operating pressures up to 250 Pounds and for bending.
Type O in Hard Temper for operating pressures up to 125 Pounds.
We do NOT recommend lighter than Type K Soft for Underground use.

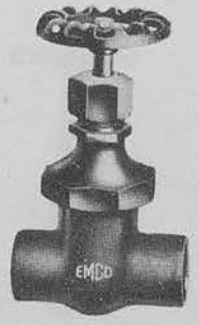
CAST BRASS VALVES

B.8406 DISC GLOBE VALVE
FOR 150 LBS. W.S.P
Copper to Copper
B.8407 Copper to Female

B.8426 DISC ANGLE VALVE
FOR 150 LBS. W. S. P.
Copper to Copper
B.8427 Copper to Female



B.8606 GATE VALVE
RISING STEM
FOR 150 LBS. W. S. P.
Copper to Copper



B.8616 GATE VALVE
NON-RISING STEM
FOR 150 LBS. W. S. P
Copper to Copper

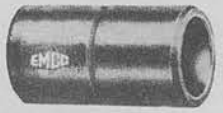
Cat. Plate No.		⅛"	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"
B.8406	Globe Valve, Copper Ends.....	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
B.8407	Globe Valve, Copper Ends.....	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
B.8426	Angle Valve, Copper Ends.....	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
B.8427	Angle Valve, Copper Ends.....	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
B.8606	Gate Valve, Copper Ends.....	.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
B.8616	Gate Valve, Copper Ends.....	.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00

CAST SOLDER FITTINGS

LIST PRICE PER FITTING—FOR REDUCING SIZES TAKE SAME LIST AS STRAIGHT SIZES USING LARGEST OPENING LIST UNLESS OTHERWISE SPECIFIED

Cat. No.	Description	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
	COUPLINGS AND ADAPTERS												
1700	Wrought Tube, Copper to Copper	$.08	$.08	$.11	$.16	$.22	$ .27	$ .34	$ .61	$ .88	$1.43	$2.02	$2.54
1700-2	Wrought Tube Bushing, C-Ftg.	.08	.09	.12	.17	.23	.29	.36	.65	.91	1.43	2.02	2.54
1701	Cast, Copper to Copper, straight	.13	.14	.16	.24	.40	.68	91	1.30	2.21	3.04	4.55	5.13
1703 & 1704	Copper to I. P. Thread, straight												
1701R	Cast, Copper to Copper Reducing												
1703 & 1704	Copper to I. P. Thread, reducing												
1701-2	Cast, Copper to Fitting (Bushing)												
1702	Cast, Eccentric, Copper to Cop.	.14	.15	.17	.26	.43	.72	.91	1.30	2.21	3.25	4.55	5.51
1703-2	Fitting to Female I.P. Thread												
1704-2	Fitting to Male I.P. Thread												
	45° ELBOWS												
1706	Copper to Copper	.13	.14	.16	.27	.49	.74	1.01	1.48	2.60	3.38	5.06	5.67
1706-R	Copper to Copper, Reducing												
1706-2	Copper to Fitting												
1706-3	Copper to Female I.P. Thread	.14	.15	.17	.29	.52	.78	1.09	1.60	2.60	3.63	5.20	6.09
1706-2-3	Fitting to Female I.P. Thread												
1706-4	Copper to Male I.P. Thread												
1706-2-4	Fitting to Male I.P. Thread												
	90° ELBOWS												
1707	Copper to Copper	.13	.14	.16	.27	.49	.74	1.01	1.48	2.60	3.38	5.06	5.67
1707R	Cast, Copper to Copper, Reducing												
1707-2	Copper to Fitting												
1707-2-3	Fitting to Female I.P. Thread	.14	.15	.17	.29	.52	.78	1.09	1.60	2.60	3.63	5.20	6.09
1707-2-4	Fitting to Male I.P. Thread												
1707-3	Copper to Female I.P. Thread												
1707-4	Copper to Male I.P. Thread												
1707-5	Copper to Copper, Drop Ear	......	.22	.26	.44	......	......	......	......	......	......	......	......
1707-3-5	Copper to Female, Drop Ear												
1707-6	Copper to Copper with Union	......	1.04	1.17	1.56	2.08	2.73	3.90	5.07	......	......	......	......
1707-3-6	Copper to Union End Female	......	1.17	1.36	1.69	2.34	3.12	4.29	5.85	......	......	......	......
1707-4-6	Copper to Union End Male												
1707-6-3	Female to Union End Copper												
1707-6-4	Male to Union End Copper												
	Wrought Copper Elbows same prices as above												
	TEES	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
1711	Copper to Copper to Copper, straight	.20	.20	.24	.43	.68	1.01	1.48	2.03	3.25	4.32	6,75	8.06
1711-R	Copper to Copper to Copper. reducing												
1710-3	Female to Female to Copper												
1710-4	Male to Male to Copper												
1710-3-4	Male to Female to Copper												
1712	Copper to Copper to Female												
1712-3	Copper to Female to Female	.22	.22	.26	.46	.72	1.09	1.60	2.18	3.25	4.64	6.82	8.06
1713	Copper to Copper to Male												
1713-4	Copper to Male to Male												
1714	Copper to Female to Copper												
1714-4	Copper to Female to Male												
1715	Copper to Male to Copper												
1715-3	Copper to Male to Female												
1711-6	Union on any Outlet	......	1.24	1.36	1.95	2.54	3.38	5.00	6.70	......	......	......	......
1711-5	Copper to Copper, to Drop Ear	.29	.36	.44	.73	......		......	......	......	......	......	......
1712-5	Copper to Copper to Female, Drop Ear												
	Wrought Copper Tees same prices as above												
1716	Fitting End Plug	.08	.09	.12	.17	.23	.65	.91	1.30	2.21	2.93	3.25	4.94
1717	Tubing End Cap												
	UNIONS												
1733	Union, Ground Joint Cop. to Cop.	.72	.78	.85	1.17	1.43	1.95	2.86	3.58	7.15	......	......	......
1733-3	Union, Ground Joint C. to Female	......	1.04	1.17	1.43	1.88	2.99	3.44	4.88	9.42	......	......	......
1733-4	Union, Ground Joint Cop. to Male												
1735	Cross	.36	.36	.44	.72	1.09	1.74	2.39	3.19	5.52	7.98	10.88	12.87
1736	Cross-Over Coupling	......	......	.52	.85	......	......	......	......	......	......	......	......
1737	Cross-Over Tee	......	......	.78	.98	......	......	......	......	......	......	......	......
1738	Return Bend, Tube open	.21	.26	.39	.46	.78	1.30	1.56	2.73	......	......	......	......
1739	Return Bend, Cast	......	.52	.58	.98	1.43	2.40	2.60	3.58	4 88	7.15	......	......
1740	Flanged Union—No Bolts, 2 Pcs.	......	......	2.86	3.12	3.64	4.16	4.55	5.98	9.36	12.48	14.82	18.20
	Centres of 1738, Return Bend	......	1⅜"	1¾"	2⅜"	2⅞"	4"	4⅜"	5⅛"	......	......	......	......
	Centres of 1739, Return Bend	......	1"	1¼	1½"	1¾"	2"	2½"	3"	3½"	4"	......	......

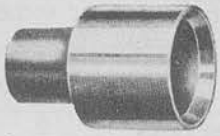
CAST SOLDER FITTINGS



1701—COUPLINGS
Copper to Copper

1700—WROUGHT TUBE COUPLINGS

1701-R—REDUCING COUPLINGS
Copper to Copper



1701-2—FITTING REDUCERS
Fitting to Copper

1702
ECCENTRIC COUPLINGS
Copper to Copper

1703—ADAPTERS
Copper to Female

1703-2—ADAPTERS
Fitting to Female

1704—ADAPTERS
Copper to Male

1704-2 —ADAPTERS
Fitting to Male

1706—45° ELBOWS
Copper to Copper

1706-2—45° ELBOWS
Fitting to Copper

1706-3—45° ELBOWS
Copper to Female

1706-4—45° ELBOWS
Copper to Male

1706-2-4—45° ELBOWS
Fitting to Male

1706-2-3—45° ELBOWS
Fitting to Female

1707—90° ELBOWS
Copper to Copper

1707-2—90° ELBOWS
Fitting to Copper

1707-3—90° ELBOWS
Copper to Female

1707-4—90° ELBOWS
Copper to Male

1707-2-3—90° ELBOWS
Fitting to Female

1707-2-4—90° ELBOWS
Fitting to Male

1707-6—90° UNION ELBOWS
Copper to Copper

1707-3-6—90° UNION ELBOWS
Copper to Female

1707-4-6—90° UNION ELBOWS
Copper to Male

CAST SOLDER FITTINGS

1707-5—90° DROP EAR ELBOWS
Copper to Copper

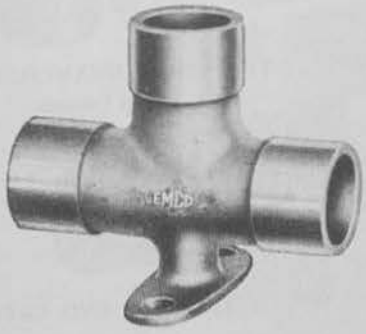
1707-3-5—90° DROP EAR ELBOWS
Copper to Female

1710-3—TEES
Female to Female to Copper

1710-3-4—TEES
Male to Female to Copper

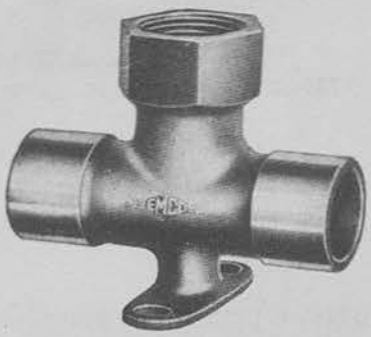
1710-4—TEES
Male to Male to Copper

1711—TEES
Copper to Copper to Copper



1711-5—DROP EAR TEES
Copper to Copper to Copper

1711-6—UNION TEES
Copper to Copper



1712-5—DROP EAR TEES
Copper to Copper to Female

1712—TEES
Copper to Copper to Female

1712-3—TEES
Copper to Female to Female

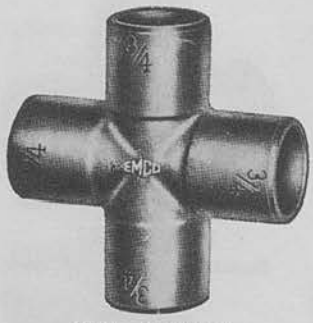
1713—TEES
Copper to Copper to Male

1713-4—TEES
Copper to Male to Male

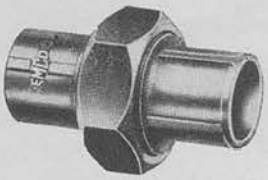
1714—TEES
Copper to Female to Copper

1714-4—TEES
Copper to Female to Male

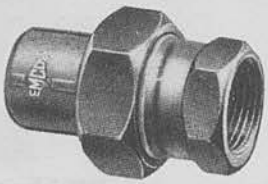
CAST SOLDER FITTINGS



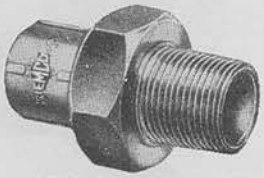
1735—CROSSES
All Combinations



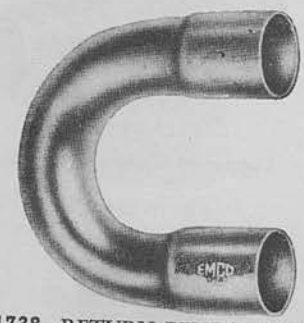
1733—UNIONS
Copper to Copper



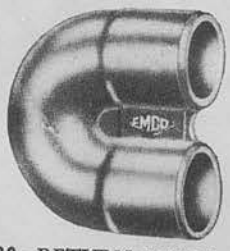
1733-3 –UNIONS
Copper to Female



1733-4—UNIONS
Copper to Male

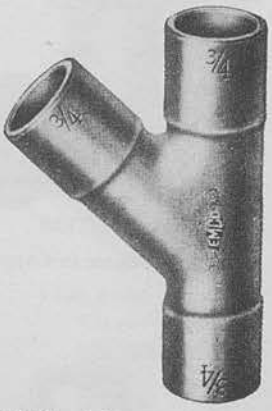


1738—RETURN BENDS—OPEN
(Tube)

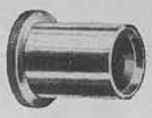


1739—RETURN BENDS
—CLOSED (Cast)
Copper to Copper

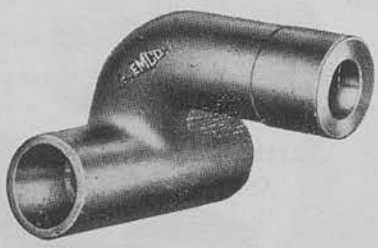
1748—90° Y BRANCHES
Copper to Copper



1749—45° Y BRANCHES
Copper to Copper



1716—FITTING END PLUGS



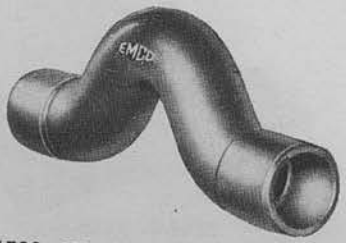
1737—CROSS-OVER TEES
All Combinations

1717—TUBE END CAPS

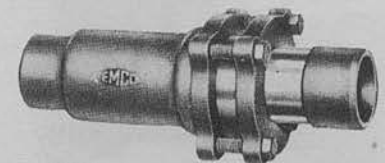
1715—TEES
Copper to Male to Copper

1715-3—TEES
Copper to Male to Female

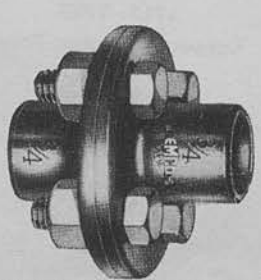
1744—EXPANSION JOINTS



1736—CROSS-OVER COUPLINGS



1745—EXPANSION JOINTS
(Bolts not included)



1740—FLANGED UNIONS
—M. I. F.
(2 parts. Bolts not included)

WHITESHOWERS SYSTEM

Short Range Greenhouse Nozzle

This specially designed nozzle throws a fine mist spray 6 ft. to either side of irrigation line. Does not drip in operation

Quarter Radius Greenhouse Nozzle

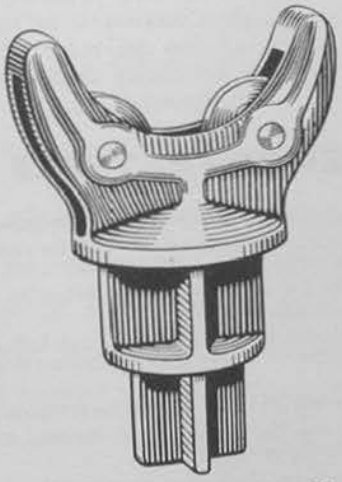
This nozzle throws a fine mist spray 8 ft. to either side of irrigation line
We also make a 70° Nozzle for 12-ft. throw and an 80° Nozzle for 18-ft. throw of proper mist spray

Standard Outdoor Nozzle

This non-clogging nozzle throws a properly broken spray 25 to 30 ft. to either side of irrigation line under a 30-lb. pressure

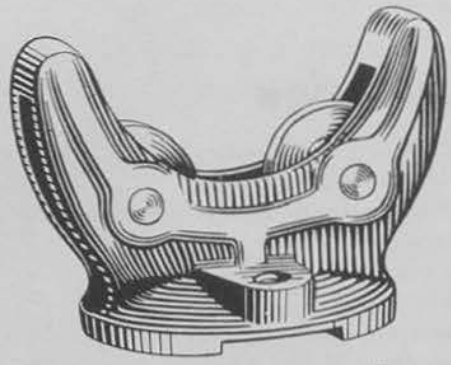
Outdoor Strainer Nozzle

Extremely dirty water may make it advisable to use this strainer nozzle. Strainer has about 200 inlet holes. Greenhouse Nozzles can also be furnished in strainer type



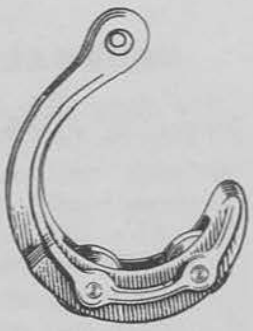
Pipe Post Roller Bearing Hanger

Pilot slips in top of post. Base covers post so there is never danger of water getting in post and freezing



Wood Post Roller Bearing Hanger

Easily nailed to top of wood post. Rollers are smooth machined brass. A brass pin fits the roller tightly, functioning as an axle, giving a bearing surface on either side

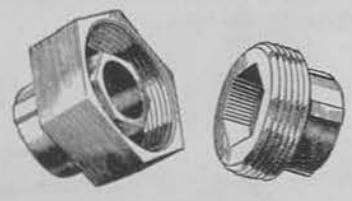


Greenhouse Roller Bearing Hanger

We also make hangers for special requirements

All Brass No-Leak Turning Union

Absolutely rust-proof and leak-proof. Long bearing surface keeps nipple in correct position at all times. Packing is on entirely smooth surfaces. Lock Nut holds packing unit so that packing cannot loosen either in hand or automatic turning. Guaranteed indefinitely



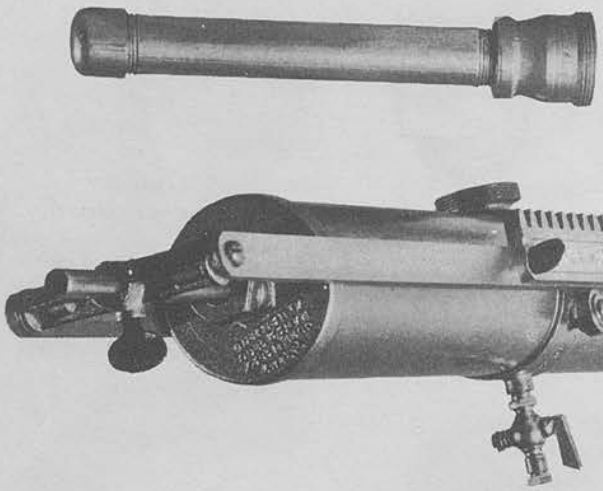
The Jiffy Coupling

This Jiffy Coupling is used on our Handy Shift Lines. Provides for rapid assembly and perfect nozzle alignment. Full round opening does not reduce flow of water or pressure

DRILLING PIPE

Pipe can be drilled for greenhouse or outside nozzles in our machine shop as per your plans and specifications.

Automatic Oscillator



● WhiteShowers Automatic Oscillators are constructed throughout of the finest materials and built to give years of service without expense to the owner. The hydraulic motor which operates the Oscillator is of the most modern design and does not reduce the pressure of the water circulating through the line to the nozzles

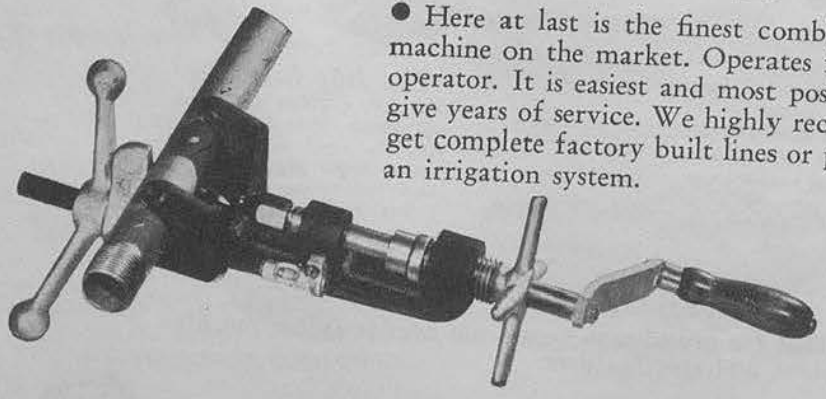
GENERAL DESCRIPTION

The above illustration shows Oscillator motor, All Brass No Leak Turning Union fitted with segment gear and motor connection, and special emergency handle. This simple and efficient construction is to be found on no other so-called Automatic Oscillators on the market. It is only necessary to have as many complete Oscillators as the number of irrigation lines you can operate at one time. Balance of lines can be equipped with All Brass No Leak Turning Union assemblies and the motors can be quickly and easily moved. This affords a tremendous saving in the cost of Automatic Irrigation. The emergency handle is for use on lines where motors are not operating if it might be necessary to use these lines at any time.

SUPERIOR FEATURES

1. This Automatic Oscillator turns any make Irrigation line.
2. Simple in construction yet ruggedly built for continuous dependable service.
3. Power applied at all times direct to irrigation line by time-tried hydraulic principle.
4. Does not require complicated anti-back lash attachments which always means more equipment to get out of order.
5. Wastes no water and does not reduce pressure.
6. Easily adjustable for watering any desired area by merely shortening stroke of pistons.
7. Few working parts which mean minimum upkeep cost.
8. Turns the irrigation lines at proper speed for both general watering and frost protection.
9. You can water evenly at night, saving time, labor and water.
10. Fully guaranteed by a thoroughly responsible organization that has truly pioneered the art of Modern Automatic Irrigation.

Driller and Tapper



● Here at last is the finest combination hand drilling and tapping machine on the market. Operates from side of pipe in full vision of operator. It is easiest and most positive. Eliminates all gears and will give years of service. We highly recommend its purchase whether you get complete factory built lines or parts. It is a most essential tool for an irrigation system.

SHAFT HANGERS

Hanger for Wood Rafter Standard Size

Side Vent Hanger for Wood Posts

Side Vent Hanger on 2-inch Column

Supporting or carrying the shafting pipe calls for a variety of shaft hangers to meet all types of construction. We illustrate the more standard types but have many more to select from, so that whatever your construction may be we have suitable hangers.

The wood rafter hanger is attached to the bar with cadmium plated screws, No. 15 x 1½", and carries the center line of shafting 4½" from the face of the bar to line up with all Standard ADVANCE machines. All plain bearing shaft hangers are ground to size, reducing friction to a minimum, and will last indefinitely.

Side hangers are available for all kinds of Gutter posts, Wood, Pipe or Flat Iron. So as to not interfere with walks all side hangers are designed close into the Gutter Post and to reduce installation work side hangers are set screwed on pipe and steel posts wherever possible. The Side hanger illustrated for pipe gutter post shows the set screw method of attachment, and if slightly over half of the post is exposed these hangers may be used as this clamp goes around just slightly over half of the post. All styles are available for either 1" or 1¼" shafting.

SPLIT ROLLER BEARING SHAFT HANGERS

Roller bearing hangers reduce friction so long as the rollers roll, and that is just what you get in this ADVANCE split roller hanger. The rollers are located where the load of the raised vents is carried. The roller wells are open at the bottom so that they are self-cleaning and they never stick or rust tight. Being split they simplify repair work, are ideal for adding vents on shafting already installed, and for new work you have the best at only a slight additional cost. Available for 1" or 1¼" shaft. Wood rafter style only.

The above fittings and those on the preceding pages cover some of the ADVANCE material. We will be glad to mail you a catalogue covering the complete line, and quote you prices on receipt of your specification.

ADVANCE GREENHOUSE FITTINGS

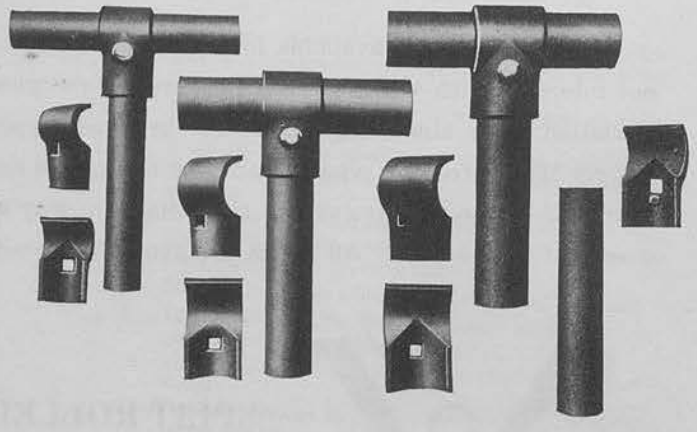
SPLIT TEES

Split Tees are, without doubt, the solution to more Greenhouse problems than any other fitting. Their many uses are beyond listing, but primarily these tees were designed for assembling the pipe frame work in a Greenhouse. This called for strength, reliability, neatness, and long service. These merits, and more, are combined in ADVANCE tees, enabling us to recommend them for uses where all others have failed. Accuracy as to size, additional weight at the points of strain, straight line design, quality materials and making our own fittings, are all worth remembering. We invite you to test ADVANCE tees to your own satisfaction, or, in comparison with any other kind.

ADVANCE TEES CAN BE ELBOWS IF USED ON ENDS OF PIPE

A tee is no stronger than the bolt holding it together so here again you find us using ⅜″ assembly bolts on sizes as small as 1″.

There is hardly a size or combination size from ½″ to 4″ that we do not have. Remember ADVANCE tees for pipe framing greenhouses, bracing, purlin ties, purlin supports, pipe frame benches, wire supports on bench ends, railings and the larger sizes for fence post braces, dairy barn pens and stalls, in fact pipe-framing work of all kinds.



SPLIT CROSS

In some pipe framing work there is a need for split cross fittings. Designed along the same line of our Split Tees you will find these crosses equally strong, neat, and reliable. Standard pipe sizes up to 2″ carried in stock with many combination sizes available.

Split Cross

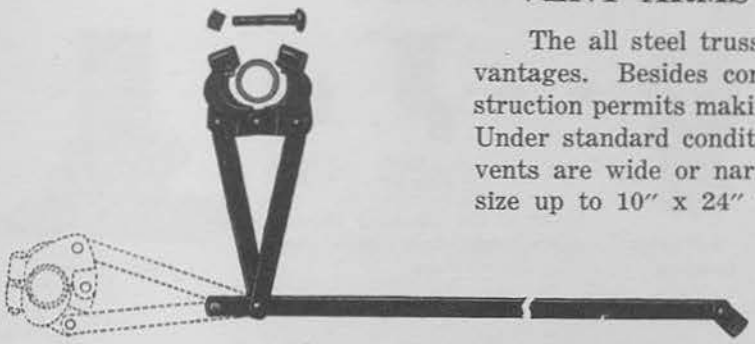
PURLIN END BEARER

Purlin End Bearer

Use this Purlin End Bearer on all gable end rafters in place of a pipe strap. It is made to line perfectly with the straps carrying the purlin line. Purlin end bearers bolt to the end rafter in addition to having grip lugs that prevent twisting. A set screw secures the pipe and your entire gable is greatly strengthened. Stocked in ¾″, 1″, and 1¼″ pipe sizes.

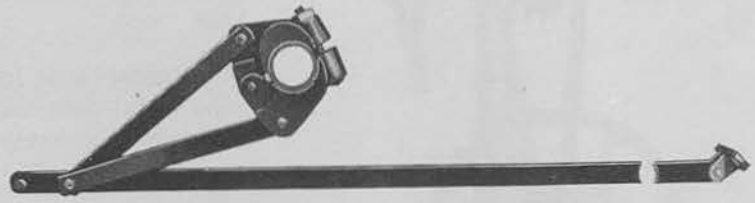
ADVANCE GREENHOUSE FITTINGS

VENT ARMS



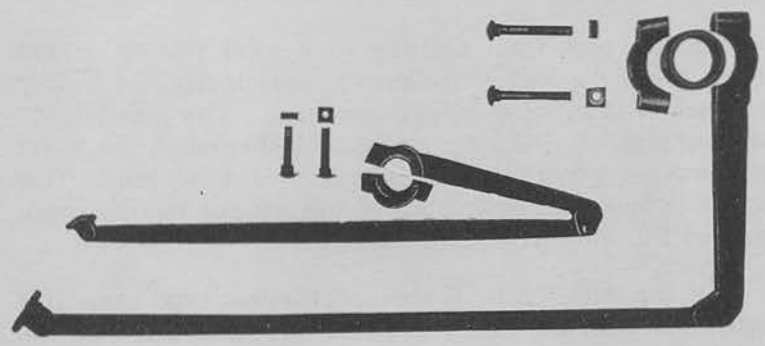
Truss Type Sash Arm in Right Angle Position

The all steel truss construction of this arm has many advantages. Besides combining strength and neatness this construction permits making arms the proper size for any size vent. Under standard conditions an 8″ x 21″ arm is used but if the vents are wide or narrow we simply make this arm the right size up to 10″ x 24″ to give you the correct opening, and, it costs no more. Just another reason why it pays to use ADVANCE MACHINES. Each arm has individual stop for extreme open position.



Truss Type Sash Arm in Closed Position

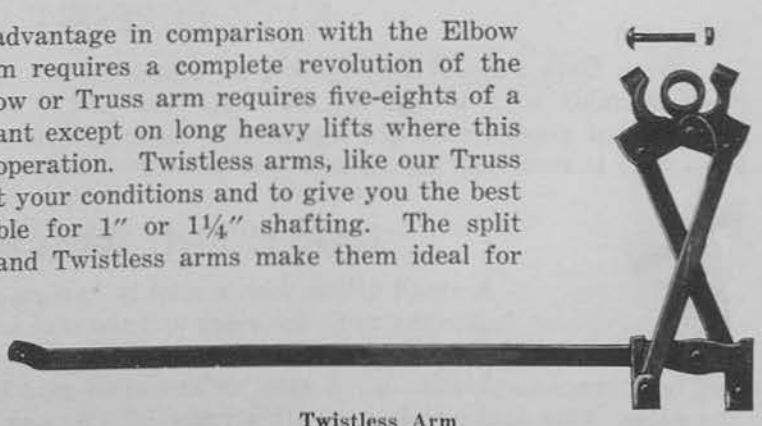
Truss arms stay tight on the shafting and there is only one bolt to tighten. Teeth in the clamp bite into the shafting as the ⅜″ nut is drawn up. You do not need to be afraid to tighten these arms as they have the strength. Once erected this arm needs no further attention. ¼″ Cadmium plated bolts fasten the arms to the Vent rail and we have any number of sash brackets to fit various conditions. These arms furnished for 1″ or 1¼″ shafting are the same price.



Elbow Type Sash Arm

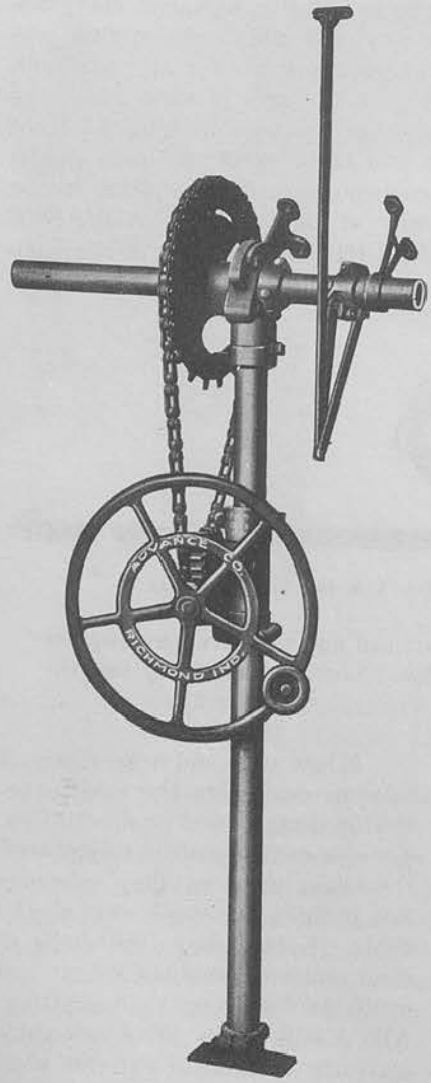
Elbow arms, old in service, and to some customers the most practical in design, need no description. For side vents we often recommend the elbow arms as they interfere less if there is a walk next to the vents. Several sizes are made to meet various conditions and are available for 1″ or 1¼″ shafting. ADVANCE elbow arms are automatically stopped in extreme position and cannot turn over.

The twistless arm has a mechanical advantage in comparison with the Elbow or Truss type. A full opening of this arm requires a complete revolution of the shafting pipe. A full opening of the Elbow or Truss arm requires five-eights of a revolution. This difference is not important except on long heavy lifts where this additional travel results in slightly easier operation. Twistless arms, like our Truss type, can be made in various sizes to meet your conditions and to give you the best results. 8″ x 21″ standard size. Available for 1″ or 1¼″ shafting. The split clamp construction of the Truss, Elbow, and Twistless arms make them ideal for repair work as they can be attached without disconnecting or moving the shafting, also they can be made in any size to correspond with arms you have.



Twistless Arm

THE BIG ADVANCE MACHINE



Anti-friction Bearing

Rollers

Angle Bracket

Clamp Collar

Units of the assembly shown above, and (right) post foot base.

Foot Base

These parts are used in the upper assembly. Note there is nothing complicated which would give you trouble of any kind.

Operation is by turning the big 15″ handwheel with a solid metal door knob handle. You can't pinch your hand on our door knob handles and their weight add momentum to the turning.

Without doubt the most widely known and used vent machine for roof ventilators. Compact, neat, well designed, sturdy machine without equal.

Uses standard 1¼″ pipe for shafting which has by test a 42% greater twisting resistance than 1″ double strength pipe.

Machine post from shafting to a solid footing in the ground takes the load of the raised vents instead of having this load on the roof of your Greenhouse. The post is 1½″ standard pipe. Self-locking in all positions through the worm and worm gears without ratchets or catches of any kind. This feature is important and is one of the reasons for the popularity of this BIG ADVANCE machine.

For use with Truss, Elbow or Twistless type arms this machine is equipped with a large 12″ sprocket wheel on the line shaft.

EAVE SUPPORT FITTING

These Eave Support Fittings are adjustable to any angle. It is a two-piece assembly with a large flat base 2½″ wide and 6″ in length. Four cadmium plated wood screws are furnished to securely hold the plate. The same large base is furnished for all pipe post sizes 2″ down to 1″.

GABLE END BRACE FITTING

A small fitting with a mighty important place in all gable end bracing. The base is just right to fit the ridge and the pipe socket, like many ADVANCE fittings, is adjustable to any angle. Put a pipe across the gable over the door frame with pipe straps and back brace to this fitting. A split tee should be used for connecting the brace to the pipe across the gable. This fitting has many other practical uses and is made in all sizes.

JENKINS BRONZE VALVES

GLOBE AND ANGLE

Standard Pattern—New Style

One-Piece Screw-Over Bonnet **Slip-On, Stay-On Disc Holder**

Regularly Fitted with No. 119 Disc for 150 Pounds Steam Working Pressure
For 250 Pounds Oil, Water, Gas Working Pressure use No. 936 Disc

Conforming to Canadian Interprovincial Specifications
Registration Numbers 0281-123456 and 0282-123456

Sizes	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 106-A	2.40	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
Fig. 107-A	....	9.00	10.20	11.40	13.00	15.00	23.00	28.00	42.00	63.00	86.00
Fig. 108-A	2.40	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
Fig. 109-A	....	9.00	10.20	11.40	13.00	15.00	23.00	28.00	42.00	63.00	86.00

Fig. 106A
Globe, Screwed
Fig. 107-A
Globe, Flanged

Fig. 108-A
Angle, Screwed
Fig. 109-A
Angle, Flanged

REGRINDING GLOBE AND ANGLE

Renewable WEARESIST Metal Seat Ring and Disc
AND
Throttling Type-Cone Plug Seated
Renewable WEARESIST Metal Seat Ring and Plug Disc

For 200 Pounds Steam Working Pressure
or 300 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications. Registration Numbers 0953-123456 and 0954-123456

Approved by the Canadian Government Steamship Inspection Board. Sizes 1/4" to 2"

Sizes	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 460	4.00	4.50	5.20	7.00	8.00	12.00	16.00	25.00	45.00	64.00
Fig. 461	.....	13.50	13.50	16.00	19.00	24.00	30.00	44.00	66.00	90.00
Fig. 462	4.00	4.50	5.20	7.00	8.00	12.00	16.00	25.00	45.00	64.00
Fig. 463	.....	13.50	13.50	16.00	19.00	24.00	30.00	44.00	66.00	90.00
Fig. 464	5.00	5.40	6.60	8.00	10.00	14.00	20.00	30.00	55.00	80.00
Fig. 465	.....	14.90	14.90	17.00	21.00	26.00	34.00	49.00	76.00	106.00
Fig. 466	5.00	5.40	6.60	8.00	10.00	14.00	20.00	30.00	55.00	88.00
Fig. 467	.....	14.90	14.90	17.00	21.00	26.00	34.00	49.00	76.00	106.00

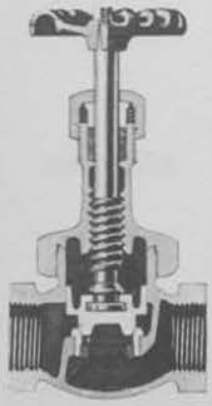


Fig. 460
Sectional View
Fig. 461
Globe, Flanged
Fig. 462
Angle, Screwed
Fig. 463
Angle, Flanged

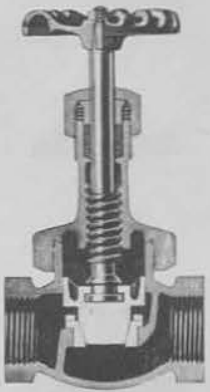


Fig. 464
Sectional View
Fig. 465
Globe, Flanged
Fig. 466
Angle, Screwed
Fig. 467
Angle, Flanged

Sterling or Extra Heavy Pattern
With Renewable Seat Ring

Screwed: For 300 Pounds Steam or 500 Pounds Oil, Water, Gas Working Pressure
Flanged: For 250 Pounds Steam or 375 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications
Registration Numbers 0193-123456 and 0194-123456

Approved by the Canadian Government Steamship Inspection Board

Sizes	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 500	9.00	11.00	12.00	15.00	20.00	25.00	34.00	49.00	100.00	140.00
Fig. 501	.....	.....	30.00	33.00	40.00	50.00	70.00	100.00	145.00	200.00
Fig. 502	9.00	11.00	12.00	15.00	20.00	25.00	34.00	49.00	100.00	140.00
Fig. 503	.....	.....	30.00	33.00	40.00	50.00	70.00	100.00	145.00	200.00

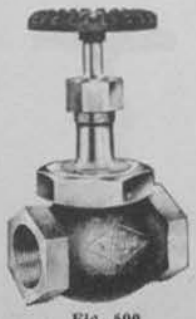


Fig. 500
Globe, Screwed
Fig. 501
Globe, Flanged

Fig. 502
Angle, Screwed
Fig. 503
Angle, Flanged

JENKINS BRONZE VALVES

GATE

Standard Pattern

Non-Rising Spindle

Conforming to Canadian Interprovincial Specifications. Registration Number 0203-123456

Rising Spindle

Conforming to Canadian Interprovincial Specifications. Registration Number 0136-123456

Fig. 300
Gate, Screwed
Fig. 301
Gate, Flanged

For 125 Pounds Steam Working Pressure
or 200 Pounds Oil, Water, Gas Working Pressure

Sizes...	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 300	2.40	2.40	2.60	3.30	4.40	6.00	8.00	11.00	19.00	28.00
Fig. 301	.....	.....	.....	14.00	16.00	19.50	24.00	37.50	49.00	57.50
Fig. 470	2.40	2.40	2.60	3.30	4.40	6.00	8.00	11.00	19.00	28.00
Fig. 471	.....	.....	.....	14.00	16.00	19.50	24.00	37.50	49.00	57.50

Fig. 470
Gate, Screwed
Fig. 471
Gate, Flanged

Medium Pattern
Non-Rising Spindle

For 200 Pounds Steam Working Pressure
or 300 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications
Registration Number 0205-123456

Fig. 270
Gate, Screwed

Sizes....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 270.	3.90	3.90	4.60	5.60	8.00	10.00	13.20	21.50	31.00	50.00
Fig. 271.	.....	.....	.....	23.00	28.00	33.00	43.00	62.00	85.00	110.00

Fig. 271
Gate, Flanged

Extra Heavy Pattern
Non-Rising Spindle

For 250 Pounds Steam Working Pressure
or 400 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications
Registration Number 0207-123456

Fig. 280
Gate, Screwed

Sizes.....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Figure 280.	10.00	10.00	12.00	14.40	16.00	22.50	33.00	46.00	80.00	123.00
Figure 281.	.....	.....	.....	26.00	32.00	43.00	60.00	82.00	130.00	190.00

Fig. 281
Gate, Flanged

JENKINS BRONZE VALVES

SWING CHECK

Standard Pattern

Regularly Fitted with No. 936 Disc for 250 Pounds Non-Shock Oil, Water, Gas Working Pressure

For 150 Pounds Steam Working Pressure Use 119 Disc

Conforming to Canadian Interprovincial Specifications
Registration Number 0216-123456

Fig. 475
Swing Check, Screwed

Fig. 476
Swing Check, Flanged

Sizes	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 475	3.80	4.00	4.40	5.80	7.80	11.00	14.30	21.40	40.00	60.00
Fig. 476	....	....	12.00	14.00	16.00	25.00	30.00	45.00	69.00	98.00

Reliance or Medium Pressure Pattern

For 200 Pounds Steam or 300 Pounds Non-Shock Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications
Registration Number 0217-123456

Fig. 449
Swing Check, Screwed

Fig. 450
Swing Check, Flanged

Sizes	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 449	6.25	6.25	6.60	7.50	8.00	11.00	14.00	20.00	38.00	51.00
Fig. 450	....	....	....	24.00	25.00	34.00	42.00	70.00	100.00	123.00

Extra Heavy Pattern — Renewable Composition Disc

Regularly Fitted With No. 936 Disc For 450 Pounds Non-Shock Oil, Water, Gas Working Pressure

For 300 Pounds Steam Working Pressure Use No. 1120 Disc

Conforming to Canadian Interprovincial Specifications
Registration Number 053-123456

Fig. 260
Swing Check, Screwed

Fig. 262
Swing Check, Flange

Sizes	½	¾	1	1¼	1½	2	2½	3
Fig. 260	12.50	13.80	18.00	22.00	32.00	47.00	82.50	121.00
Fig. 262	21.00	26.00	35.00	42.00	58.00	80.00	124.00	165.00

GATE

QUICK-ACTING

For 125 Pounds Steam Working Pressure

This Quick Acting Gate Valve was designed for use where conditions require quick on and off action, dependability and fully unobstructed flow. Particularly suitable for service in oil refineries, candy, canning and packing factories, pulp, paper and textile installations.

Fig.
Gate, S

Sizes	½	¾	1	1¼	1½	2
Fig. 302	..... Prices on application					

JENKINS BRONZE VALVES

HORIZONTAL AND ANGLE CHECKS

Standard Pattern—New Style

Regularly Fitted with No 936 Disc for 250 Pounds Non-Shock Oil, Water, Gas Working Pressure

For 150 Pounds Steam Working Pressure Use No. 119 Disc

Conforming to Canadian Interprovincial Specifications Registration Numbers 01050-123456 and 01051-123456

Fig. 117-A
Horizontal, Screwed
Fig. 316-A
Horizontal, Flanged

Sizes.....	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 117-A.	2.40	2.60	2.90	3.20	4.20	5.80	8.00	11.00	16.00	30.00	46.00
Fig. 118-A.	2.40	2.60	2.90	3.20	4.20	5.80	8.00	11.00	16.00	30.00	46.00
Fig. 316-A.	.....	.....	.....	8.70	10.80	14.40	17.25	21.60	32.40	50.00	69.00
Fig. 317-A.	.....	.....	.....	8.70	10.80	14.40	17.25	21.60	32.40	50.00	69.00

Fig. 118-A
Angle, Screwed
Fig. 317-A
Angle, Flanged

Reliance or Medium Pressure Pattern

For 200 Pounds Steam or 300 Pounds Non-Shock Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications Registration Numbers 0243-123456 and 0244-123456

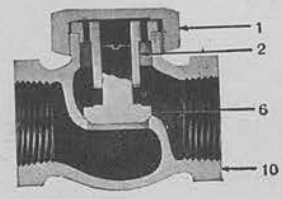


Fig. 443
Sectional View
Horizontal Screwed
Fig. 445
Angle, Screwed

Sizes....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 443.	2.00	2.30	2.80	4.00	5.50	7.20	10.00	16.00	29.00	41.00
Fig. 444.	.....	.....	10.50	12.00	15.00	20.00	26.00	36.00	55.00	75.00
Fig. 445.	2.00	2.30	2.80	4.00	5.50	7.20	10.00	16.00	29.00	41.00
Fig. 446.	.....	.....	10.50	12.00	15.00	20.00	26.00	36.00	55.00	75.00

Fig. 444
Horizontal, Flanged
Fig. 446
Angle, Flanged

Sterling—Extra Heavy Pattern—Renewable Seat Ring

Screwed: For 300 Pounds Steam or 500 Pounds Non-Shock Oil, Water, Gas Working Pressure

Flanged: For 250 Pounds Steam or 375 Pounds Non-Shock Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications Registration Numbers 0241-123456 and 0242-123456

Fig. 518
Horizontal, Screwed
Fig. 519
Horizontal, Flanged

Sizes....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Fig. 518..	4.30	4.70	6.10	8.30	10.20	13.50	18.50	30.00	51.00	78.00
Fig. 519..	....	....	15.00	20.00	24.00	34.00	48.00	70.00	110.00	145.00
Fig. 520..	4.30	4.70	6.10	8.30	10.20	13.50	18.50	30.00	51.00	78.00
Fig. 521..	....	....	15.00	20.00	24.00	34.00	48.00	70.00	110.00	145.00

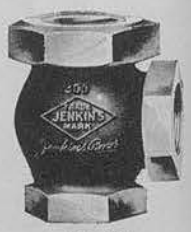


Fig. 520
Angle, Screwed
Fig. 521
Angle, Flanged

JENKINS IRON BODY VALVES

GATE

Standard Pattern

Bronze Mounted

2"-24" Tapered Seat, Double Discs — **30"-60" Paralled Seat, Double Discs**

Sizes 2" to 12" for 175 Pounds Oil, Water, Gas Working Pressure or for 125 pounds Steam Working Pressure.
Sizes 14" and 16" for 150 Pounds Oil, Water, Gas Working Pressure or for 125 Pounds Steam Working Pressure.
Sizes 18" and larger for 125 Pounds Oil, Water, Gas Working Pressure or for 100 Pounds Steam Working Pressure.

Non-Rising Spindle — **Outside Screw and Yoke**

Conforming to Canadian Interprovincial Specifications Registration Number 0208-123456

Conforming to Canadian Interprovincial Specifications Registration Number 0209-123456

Fig. 401
Gate, Screwed
Fig. 402
Gate, Flanged

Sizes	2	2½	3	3½	4	5	6	8
Fig. 401	10.00	11.50	14.00	17.00	19.00	27.50	32.50	54.00
Fig. 402	12.00	13.50	16.50	19.50	23.00	31.50	36.50	58.00

Sizes	10	12	14	16	18	20	24	30
Fig. 401	90.00	125.00	.....	.....	.....	.....	.....	....
Fig. 402	95.00	133.00	181.00	260.00	350.00	425.00	600.00	....

Sizes	2	2½	3	3½	4	5	6	8	10
Fig. 403	19.00	20.50	23.50	27.00	32.50	45.00	52.00	86.00	131.00
Fig. 404	21.00	22.50	26.00	29.50	36.50	49.00	56.00	90.00	136.00

Sizes	12	14	15	16	18	20	24	30	36
Fig. 403	172.00	.....	.....	.....	.....	.....	.....	.....	.....
Fig. 404	180.00	255.00	310.00	350.00	470.00	565.00	775.00	.....	.....

*Large sizes are usually operated by gears, electric motor or hydraulic pressure, Prices on application.

Fig. 404
Gate, Flanged
Fig. 403
Gate, Screwed

CLIP GATE

Rising Spindle — **Bronze Mounted and All-Iron Patterns**

Screwed: Sizes ½" to 2" for 150 Pounds Steam or 225 Pounds Oil, Water, Gas Working Pressure
Sizes 2½" to 4" for 125 Pounds Steam or 175 Pounds Oil, Water, Gas Working Pressure
Flanged: For 125 Pounds Steam or 175 Pounds Oil, Water, Gas Working Pressure

Fig. 42
Screwed, Bronze Mounted

Size	½	¾	1	1¼	1½	2	2½	3	3½	4
Fig. 40,	4.20	4.80	5.50	6.30	7.00	10.00	16.00	20.00	40.00	51.00
Fig. 41,	..... Prices on application									
Fig. 42,	3.70	4.50	5.00	6.00	7.00	10.00	17.00	21.00	46.00	48.00
Fig. 43,	..... Prices on application									

Fig. 40
Screwed, all iron

Fig. 41
Flanged, all iron

Fig. 43
Flanged, Bronze Mounted

Fig. 42
Sectional View
(Showing drainage channels)

JENKINS IRON BODY VALVES

GATE

Medium Pattern

Bronze Mounted Solid Wedge Disc

Non-Rising Spindle

Outside Screw and Yoke

Fig. 251
Gate, Screwed
Fig. 255
Gate, Flanged

For 175 Pounds Steam Working Pressure
or 300 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications
Registration Number 0210-123456

Sizes	2	2½	3	3½	4	5	6	8	10	12
Fig. 251	15.00	17.00	20.00	25.00	28.00	40.00	50.00	87.00	145.00	185.00
Fig. 255	17.50	19.50	23.00	28.00	33.00	45.00	57.00	94.00	153.00	195.00
Fig. 253	27.00	29.00	33.50	40.00	47.50	62.00	76.00	123.00	187.00	237.00
Fig. 277	24.50	26.50	30.50	37.00	42.50	57.00	69.00	116.00	179.00	227.00

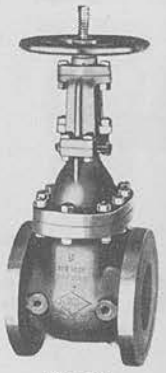


Fig. 253
Gate, Flanged
Fig. 277
Gate, Screwed

Extra Heavy Pattern

Non-Rising Spindle

Solid Wedge Disc Bronze Mounted

Outside Screw and Yoke

For 250 Pounds Steam Working Pressure
or 500 Pounds Oil, Water, Gas Working Pressure

1000 Pounds Hydrostatic Test

Conforming to Canadian Interprovincial Specifications Registration Number 0211-123456

Fig. 203a
Gate, Screwed
Fig. 203
Gate, Flanged

Sizes	1½	2	2½	3	3½	4
Fig. 203a	25.00	27.50	33.00	45.00	57.00	60.00
Fig. 203	27.50	30.00	35.50	48.00	60.00	65.00
Fig. 204-a	35.50	38.50	44.50	58.00	72.00	78.00
Fig. 204	38.00	41.00	47.00	61.00	75.00	83.00

Sizes	5	6	8	10	12	14	16
Fig. 203a	85.00	100.00	155.00	250.00	.....	.....	.....
Fig. 203	90.00	107.00	162.00	258.00	335.00	440.00	675.00
Fig. 204-a	108.00	124.00	194.00	297.00	.....	.....	.....
Fig. 204	113.00	131.00	201.00	305.00	420.00	.....	.....

Fig. 204
Gate, Flanged
Fig. 204a
Gate, Screwed

GATE

With Hub Ends and Square Operating Nut

Non-Rising Spindle

Bronze Mounted

Fig. 400
Gate, with Hub Ends

Sizes 2" to 14"
150 Pounds Water Working Pressure

Sizes 16" to 24"
125 Pounds Water Working Pressure

Sizes 30" to 48"
100 Pounds Water Working Pressure

Sizes	2	3	4	5	6	8	10
Fig. 400	10.00	14.00	19.00	27.50	32.50	54.00	90.00

Sizes	12	14	16	18	20	24	30
Fig. 400	125.00	173.00	250.00	340.00	415.00	590.00	1075.00

JENKINS IRON BODY VALVES

GLOBE AND ANGLE
Standard Pattern

Bronze Mounted **Renewable Seat Ring** **Jenkins Disc**

Regularly fitted with No. 119 Disc for 150 Pounds Steam Working Pressure
For 250 Pounds Oil, Water, Gas Working Pressure use No. 936 Disc

Conforming to Canadian Interprovincial Specifications
Registration Numbers 0199-123456 and 0200-123456

Fig. 142
Globe, Flanged
Fig. 141
Globe, Screwed

Sizes...	2	2½	3	3½	4	5	6	8	10	12
Fig. 141	10.00	12.00	16.75	19.50	24.00	40.00	48.00	90.00	130.00	185.00
Fig. 142	11.75	14.00	18.50	21.50	26.00	42.00	50.00	90.00	130.00	185.00
Fig. 143	10.00	12.00	16.75	19.50	24.00	40.00	48.00	90.00	130.00	185.00
Fig. 144	11.75	14.00	18.50	21.50	26.00	42.00	50.00	90.00	130.00	185.00

Fig. 143
Angle, Screwed
Fig. 144
Angle, Flanged

Extra Heavy Pattern

Bronze Mounted **Renewable Seat Ring** **Bronze Regrinding Disc**

For 250 Pounds Steam Working Pressure
or 400 Pounds Oil, Water, Gas Working Pressure

Conforming to Canadian Interprovincial Specifications. Registration Numbers 0237-123456 and 0238-123456

Approved by the Canadian Government Steamship Inspection Board
Screwed ends: Sizes 2"
Flanged ends: Sizes 2" to 8"

Fig. 162A
Globe, Screwed
Fig. 162
Globe, Flanged

Sizes....	2	2½	3	3½	4	5	6	8	10	12
Fig. 162A	26.00	31.00	39.00	45.00	61.00	84.00	111.00	175.00	286.00	365.00
Fig. 162.	29.00	34.00	42.00	48.00	64.00	88.00	116.00	175.00	286.00	365.00
Fig. 163.	29.00	34.00	42.00	48.00	64.00	88.00	116.00	175.00	286.00	365.00
Fig. 163A	26.00	31.00	39.00	45.00	61.00	84.00	111.00	175.00	286.00	365.00

Fig. 163
Angle, flanged
Fig. 163A
Angle, Screwed

HORIZONTAL AND ANGLE CHECKS
Standard Pattern

Bronze Mounted **Renewable Seat Ring** **Jenkins Disc**

Regularly Fitted with No. 936 Disc for 250 Pounds
Non-Shock Oil, Water, Gas Working Pressure
For 150 Pounds Steam Working Pressure use No. 119 Disc

Conforming to Canadian Interprovincial Specifications
Registration Numbers 0218-123456 and 0215-123456

Fig. 151
Horizontal, Screwed
Fig. 153
Horizontal, Flanged

Sizes....	2	2½	3	3½	4	5	6	8
Fig. 151.	10.00	13.75	17.50	21.25	25.00	37.50	50.00	100.00
Fig. 153.	12.50	16.25	20.75	25.00	28.75	41.25	54.00	100.00
Fig. 153A	12.50	16.25	20.75	25.00	28.75	41.25	54.00	100.00
Fig. 152.	10.00	13.75	17.50	21.25	25.00	37.50	50.00	100.00

Fig. 153A
Angle, Flanged
Fig. 152
Angle, Screwed

JENKINS IRON BODY VALVES

SWING CHECK

Standard Pattern

Renewable Bronze Seat Ring

2″ to 6″ Solid Bronze Disc **8″ and up, Cast Iron Disc with Bronze Face**

2″ to 14″ suitable for 150 Pounds Water Working Pressure,
300 Pounds Hydrostatic Test

16″ to 24″ suitable for 125 Pounds Water Working Pressure,
250 Pounds Hydrostatic Test

These valves can also be fitted with leather faced discs when required

Fig. 587
Swing Check, Flanged

Fig. 588
Swing Check, Screwed

Sizes	2	2½	3	3½	4	5	6	8
Fig. 587, flanged	26.00	26.00	30.00	37.00	43.00	60.00	71.00	130.00
Fig. 588, screwed	22.00	22.00	25.00	32.00	37.00	54.00	63.00	122.00

Sizes	10	12	14	16	18	20	24
Fig. 587, flanged	197.00	285.00	.....	.....	.....	.....	.....
Fig. 588 screwed	189.00	.....	.....	.....	.....	.....	.....

HORIZONTAL AND ANGLE CHECKS

Extra Heavy Pattern

Regularly Fitted with No. 936 Disc for 350 Pounds Non-Shock Oil, Water, Gas Working Pressure

For 250 Pounds Steam Working Pressure use No. 1120 Disc

Conforming to Canadian Interprovincial Specifications
Registration Numbers 0219-123456 and 046-123456

Fig. 265
Horizontal, Screwed
Fig. 266
Horizontal, Flanged

Fig. 268
Angle, Flanged
Fig. 267
Angle, Screwed

Sizes	2	2½	3	3½	4	5	6
Fig. 265	28.00	31.00	39.00	48.00	62.00	84.00	118.50
Fig. 266	30.00	35.00	42.00	51.00	66.00	88.00	122.00
Fig. 267	28.00	31.00	39.00	48.00	62.00	84.00	118.50
Fig. 268	30.00	35.00	42.00	51.00	66.00	88.00	122.00

Renewable Seat Ring

Extra Heavy Pattern

Bronze Mounted **Jenkins Disc**

Regularly Fitted with No. 936 Disc for 350 Pounds Non-Shock Oil, Water, Gas Working Pressure

For 250 Pounds Steam Working Pressure use No. 1120 Disc

Conforming to Canadian Interprovincial Specifications
Registration Number 0221-123456

Fig. 338
Swing Check, Screwed

Sizes	2	2½	3	4	5	6	8
Fig. 338	25.00	33.00	46.00	68.00	89.00	109.00	165.00
Fig. 339	28.00	37.00	50.00	73.00	94.00	116.00	173.00

3½″ can also be supplied. Price on application.

Fig. 339
Swing Check, Flanged

JENKINS BRONZE VALVES

RAPID ACTION (Patented)

Fig. 720 For Oil, Gasoline or Water Service
Fig. 713 For Air, Gas, Steam or Vacuum Service

Fig. 713
Rapid Action
For Air, Gas or Steam
Service

Fig. 720
Rapid Action
For Oil, Gasoline or Water
Service

Sizes	½	¾	1	1¼	1½	2	2½
Fig. 720	14.00	17.50	20.00	24.00	29.00	39.00	55.00
Fig. 713	10.00	12.50	14.00	16.50	21.00	27.50	43.00

HY-LO AIR GUN (Patented)
With Lever Handle or Push Button

Regularly Fitted with No. 946 Disc for 125 Pounds Air Pressure

Fig. 610
Air Gun with Lever Handle

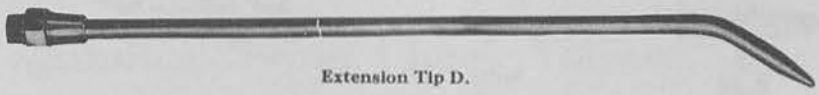
Sizes	⅛	¼	⅜
Figs. 610 and 609	3.20	3.20	3.70
Figs. 610E and 609E with flat tip B	4.20	4.20	4.70
Figs. 610F and 609F with rounded tip C	3.20	3.20	3.70
Figs. 610G and 609G with extension tip D.	4.70	4.70	5.20

Fig. 609
Air Gun with Push Button

Hose Nipple A

Flat Tip B

Rounded Tip C



Extension Tip D.

QUICK-OPENING, SELF-CLOSING

For Air, Gas or Steam Service

Fig. 121 Pattern conforms to Canadian Interprovincial Specifications Registration Number 0137-123456

Fig. 121-R
Whistle Valve
With Reversed Self-Closing
Lever for Downward Pull

Sizes	⅜	½	¾	1	1¼	1½	2	2½
Figs. 121-R, 121	7.00	8.00	10.00	13.00	16.00	24.00	34.00	50.00

When so ordered, Jenkins Fig. 121 Valves can be furnished with Levers to Meet Specific Conditions. Prices on Application

Fig. 121
Whistle Valve
With Self-Closing Lever

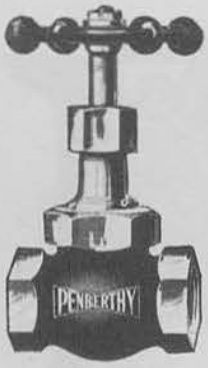
PENBERTHY PRODUCTS

COMPODISK Brass Valves

Solid Seat

For 175-lbs. Steam Pressure

With Quick Change Disc Holder and External Thread Construction



Cut No. 550—Globe

Cut No. 553—Horizontal

Cut No. 551—Angle

LIST PRICE

Size—Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Brass Globe Valves—Each	2.40	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
Brass Angle Valves—Each	2.40	2.60	3 00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
Special Spanner Wrench—For ½" and 3-inch Valves—Each										1.00	1.50

Horizontal Check Valves

Each	2.40	2.60	2.90	3.20	4.20	5.80	8.00	11.00	16.00	30.00	46.00
Each, with Drain Cock			4.05	4.35	5.35	6.95	9.15	12.15	17.15	31.25	47.25
Special Spanner Wrench—For 2½ and 3-inch Valves										1.00	1.50

DISCO

Solid Seat

For 125-lbs. Steam Pressure

With Quick Change Disc Holder and External Thread Construction

Cut No. 572—Globe

Cut No. 574—Horizontal Check

Cut No. 573—Angle

LIST PRICES—GLOBE AND ANGLE

Size—Inches	¼	⅜	½	¾	1	1¼	1½	2
Brass Globe Valves—Each	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00
Brass Angle Valves—Each	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00

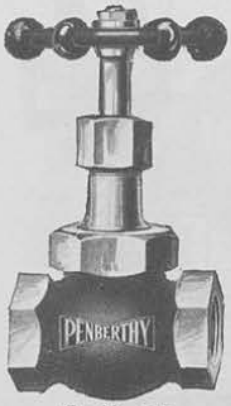
LIST PRICES— HORIZONTAL CHECK

Inches	¼	⅜	½	¾	1	1¼	1½	2
Each	2.60	2.90	3.20	4.20	5.80	8.00	11.00	16.00

TRADE PENBERTHY PRODUCTS MARK

"Penberthy" Regrinding Brass Valves

Medium Pattern. For 200 Pounds Working Pressure Screw Ends.



Cut No. 525 Globe Valve

Cut No. 537 Vertical

Cut No. 535 Horizontal

Cut No. 536 Angle

Cut No. 526 Angle Valve

PRICE LIST

Size—Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
GLOBE VALVES, BRASS—Each.....	2.40	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
ANGLE VALVES, BRASS—Each.....	2.40	2.60	3.00	3.60	4.70	6.60	8.60	12.00	19.00	34.00	48.00
CROSS VALVES, BRASS—Each.....	....	5.00	5.80	6.40	7.00	9.20	13.50	18.00	27.00	.....	.....
SPECIAL SPANNER WRENCH—For 2½ and 3 inch Valves—each.	....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	1.50
CHECK VALVES										*	*
Hor., Angle or Vertical, Brass—Each....	2.40	2.60	2.90	3.20	4.20	5.80	8.00	11.00	16.00	30.00	46.00
Hor. Check (Fig. 535) with Drain Cock..			4.05	4.35	5.35	6.95	9.15	12.15	17.15	31.25	47.25
SPECIAL SPANNER WRENCH—For 2½ and 3-inch Valves—Each..	....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	1.50

*Angle and Vertical Checks are not made in 2½" and 3" sizes.

"Penberthy" Regrinding Swing Check Valves

544-Check

Medium Pattern

200 Pounds Pressure

A Double Plug Valve Enables Check to be Removed with Ease.

PRICE LIST

Size—Inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Brass, Screw Ends—Each.....	4.50	4.50	5.00	6.50	8.00	11.00	15.00	21.00	40.00	55.00

Disc Hung at Slight Angle Ideal for Heating Systems etc.

STANDARD

Swing Check Valves

Medium Pattern

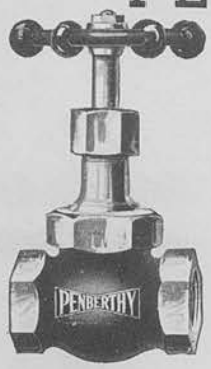
125 Pounds Pressure

496-Check

PRICE LIST

SIZE, Inches	¼	⅜	½	¾	1	1¼	1½	2
List, each	$3.10	$3.10	$3.50	$4.50	$5.60	$7.70	$10.50	$14.70

PENBERTHY BRONZE VALVES



Cut No. 587—Globe

COMPODISK R-S

For 175-lbs Steam Pressure

Cut No. 589—Horizontal Check

With Renewable Seat and Quick Change Disc Holder

Cut No. 588—Angle

LIST PRICES

Size—Inches	½	¾	1	1¼	1½	2
Brass Globe Valves—Each	3.60	4.70	6.60	8.60	12.00	19.00
Brass Angle Valves—Each	3.60	4.70	6.60	8.60	12.00	19.00
Horizontal Check Valves—Each	3.20	4.20	5.80	8.00	11.00	16.00
Horizontal Check Valves with Drain Cock	4.35	5.35	6.95	9.15	12.15	17.15
R-S Compodisk Renewable Seats	.25	.35	.50	.65	.85	1.10

Cut No. 592—Globe

DISCO R-S

With Renewable Seat and Quick Change Disc Holder

Cut No. 594—Horizontal Check

For 125-lbs. Steam Pressure

Cut No. 593—Angle

Size—Inches	½	¾	1	1¼	1½	2
Brass Globe Valves—Each	3.60	4.70	6.60	8.60	12.00	19.00
Brass Angle Valves—Each	3.60	4.70	6.60	8.60	12.00	19.00
Horizontal Check Valves—Each	3.20	4.20	5.80	8.00	11.00	16.00
R-S DiscO Renewable Seats	.25	.35	.50	.65	.85	1.10

STANDARD

Brass Valves Brass Disc.

Cut No. 490—Globe

For 125-lbs. Steam Pressure

Cut No. 492—Horizontal Check

A Sturdy Well Made General Purpose Valve With all the Features Found in the Higher Pressure Valves.

Cut No. 491—Angle

Outside Bonnet construction.

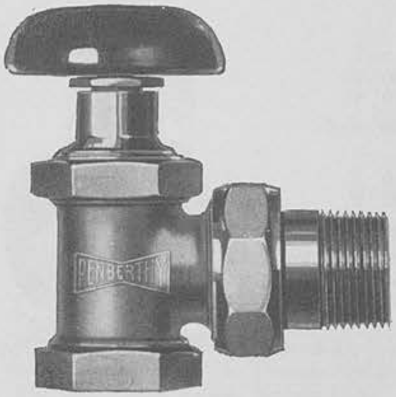
A sturdy, well made Valve for low pressures especially adapted for oil and gas lines where composition discs cannot be used.

PRICE LIST

Size, Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2
Brass Globe Valves, Each	$ 1.80	$ 1.80	$ 2.10	$ 2.50	$3.20	$4.20	$6.00	$8.30	$13.00
Brass Angle Valves, Each	1.80	1.80	2.10	2.50	3.20	4.20	6.00	8.30	13.00
Brass Horizontal Checks, Each	1.80	1.80	2.00	2.25	2.85	3.70	5.60	7.60	11.00

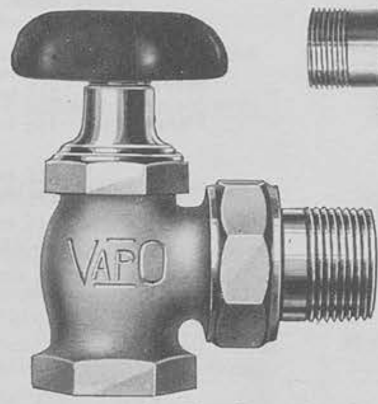
PENBERTHY BRONZE VALVES

Radiator Valves

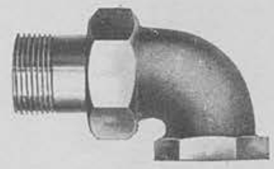


Cut No. 483
Hot Water Valve with Union

Cut No. 482
Hot Water Valve without Union



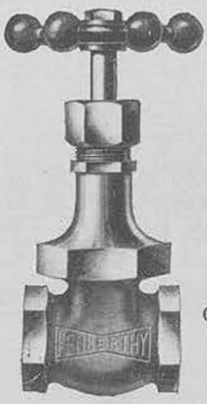
Cut No. 481
Steam Valve with Union



Cut No. 584
Union Elbow

Made in Sizes—½″ to 2″ Inclusive—Net Prices on Application

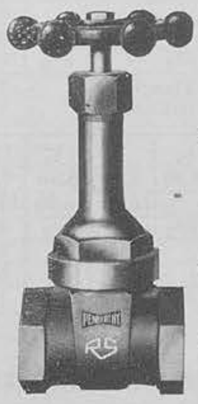
PENBERTHY
NON-RISING STEM



150 lbs.
S.W.P.
A High Grade Gate of Superior Quality Fully Guranteed

567-Gate

PENBERTHY
RISING STEM



125 lbs.
S.W.P.
Designed for Rugged Service has Full Opening, Equipped with Packing Gland and Manganese Stem

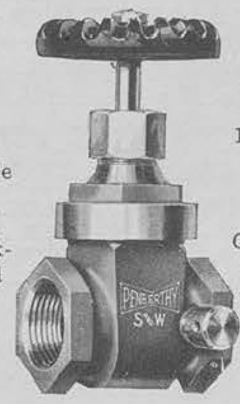
515-Gate

PENCO
NON-RISING STEM

125 lbs.
S.W.P.
A Sturdy Well Made Gate Equipped with Packing Gland has Full Opening

576-Gate

PENCO
NON-RISING STEM



125 lbs.
S.W.P.
Designed with Quick Drain Otherwise Same as Valve Opposite

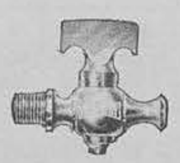
577 Stop and Waste

Size—Inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
567—Gate Valve		2.40	2.40	2.60	3.30	4.40	6.00	8.00	11.00	19.00	28.00
515—Gate Valve				2.60	3.30	4.40	6.00	8.00	11.00		
576—Gate Valve		2.40	2.40	2.60	3.30	4.40	6.00	8.00	11.00		

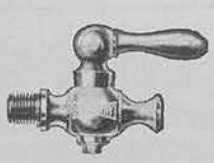
No. 577 Stop and Wastes Net Price On Application.

STANDARD AIR COCKS

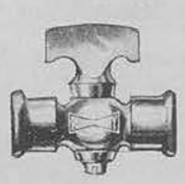
RADIATOR AIR VENTS



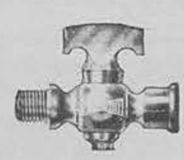
Style—A



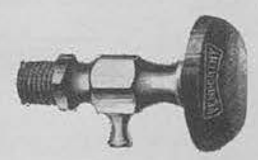
Style—B



Style—C



Style—D



No.3

Standard Air Cocks—Style A	.40	.45	.50	.60	
Standard Air Cocks—Style B	.55	.60	.65	.75	
Standard Air Cocks—Style C	.60	.70	.85		
Standard Air Cocks—Style D	.75	.80	.90		
Radiator Air Vents No. 3	NET PRICES ON APPLICATION				

LUNKENHEIMER

IRON BODY BRONZE MOUNTED AND ALL-IRON

"KING-CLIP" GATE VALVES

(Patent Pending—Trade-mark Reg. U. S. and Foreign Countries)

Rising Stem. Inside Screw. Bolted Bonnet.
Screw or Flange Ends.

Screw Ends
Fig. 1640, I. B. B. M.
Fig. 1644, All-Iron

Flange Ends
Fig. 1641, I. B. B. M.
Fig. 1645, All-Iron

STEAM

Screw Ends { ¼ to 2 in. inclusive—150 lb. W. S. P., 450° F.
2½ to 4 in. inclusive—125 lb. W. S. P., 450° F.

Flange Ends—1½ to 4 in. inclusive—125 lb. W. S. P., 450° F.

GAS OR LIQUID

Screw Ends { ¼ to 2 in. inclusive—225 lb. G. L. P., 100° F.
2½ to 4 in. inclusive—175 lb. G. L. P., 100° F.

Flange Ends—1½ to 4 in. inclusive—175 lb. G. L. P., 100° F.

Iron Body Bronze Mounted Valves have iron body and bonnet; steel clip; bronze bonnet bushing, disc, seat rings, and stem; bronze screwed stuffing box nut in sizes up to 3 in. inclusive; bronze gland follower 1 in. to 3 in. inclusive; bolted iron gland 3½ in. and 4 in. valves.

In the All-Iron Patterns, all parts are made of ferrous metals. All-Iron Valves are for use in handling solutions which attack bronze but not iron.

PRICE LIST AND LEADING DIMENSIONS

Iron Body Bronze Mounted "King-clip" Gate Valves, Screw or Flange Ends.

Size ... In.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Fig. 1640, Screw End Valves ... Each	**3.50**	**3.50**	**3.70**	**4.50**	**5.00**	**6.00**	**7.00**	**10.00**	**17.00**	**21.00**	**46.00**	**48.00**
Fig. 1641, Flange End Valves ... Each	.....	.....	.....	.....	**15.00**	**17.00**	**18.00**	**20.00**	**30.00**	**37.00**	**77.00**	**88.00**
Face to Face, Screw End Valves ... In.	1⅞	2 1/16	2¼	2⅝	2 15/16	3 5/16	3 7/16	4 1/16	4⅝	4 15/16	6 13/16	6 13/16
Face to Face, Flange End Valves ... In.	.....	.....	.....	.....	.....	.....	6	7	7½	8	8½	9
Diameter of Flanges ... In.	.....	.....	.....	.....	.....	.....	5	6	7	7½	8½	9
Center to Top of Stem, Open ... In.	4 15/16	4 15/16	5 11/16	6 15/16	8	9 1/16	10¼	12 11/16	15⅛	17½	23¾	23¾

All-Iron "King-clip" Gate Valves, Screw or Flange Ends.
For handling solutions which attack bronze but not iron

Size ... In.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Fig. 1644, Screw End Valves ... Each	**4.00**	**4.00**	**4.20**	**4.80**	**5.50**	**6.30**	**7.00**	**10.00**	**16.00**	**20.00**	**40.00**	**51.00**
Fig. 1645, Flange End Valves ... Each	.....	.....	.....	.....	**16.00**	**18.00**	**19.00**	**20.00**	**29.00**	**35.00**	**70.00**	**80.00**
Face to Face, Screw End Valves ... In.	1⅞	2 1/16	2¼	2⅝	2 15/16	3 5/16	3 7/16	4 1/16	4⅝	4 15/16	6 13/16	6 13/16
Face to Face, Flange End Valves ... In.	.....	.....	.....	.....	.....	.....	6	7	7½	8	8½	9
Diameter of Flanges ... In.	.....	.....	.....	.....	.....	.....	5	6	7	7½	8½	9
Center to Top of Stem, Open ... In.	4 15/16	4 15/16	5 11/16	6 15/16	8	9 1/16	10¼	12 11/16	15⅛	17½	23¾	23¾

LUNKENHEIMER

BRONZE, IRON BODY BRONZE MOUNTED AND ALL-IRON

"HANDY" GATE VALVES

(Reg. U. S. Pat. Off.)

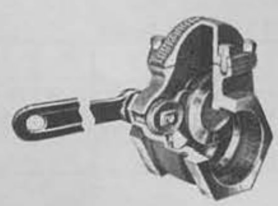


Fig. 430, Bronze

Screw Ends......75 lb. W. S. P.

Recommended for installation where quick operation is desired in handling water, oils, and low pressure steam.

The flexible ball and socket joint between the discs insures perfect seating with ease of operation.

All-Iron "Handy" Gate Valves for handling solutions which attack bronze but not iron, are listed below.

Fig. 628, Iron Body Bronze Mounted
Fig. 322, All-Iron

PRICE LIST AND LEADING DIMENSIONS

75 lb. W. S. P.—Bronze "Handy" Gate Valves, Screw Ends

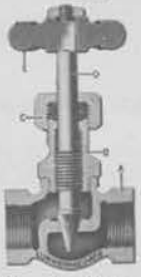
Size ... In.	½	¾	1	1¼	1½	2	2½	3	3½	4
Fig. 430, Bronze Valves ... Each	**6.00**	**6.60**	**8.50**	**11.00**	**13.00**	**20.00**	**35.00**	**50.00**	**110.00**	**160.00**
Face to Face, Screw End Valves, Bronze ... In.	2	2 1/16	2⅜	2 9/16	2⅞	3 1/16	3⅝	3⅞	5⅞	5 15/16

75 lb. W. S. P.—Iron Body Bronze Mounted "Handy" Gate Valves, Screw Ends

Size ... In.	2	2½	3	3½	4	4½	5	6	8
Fig. 628, Iron Body Bronze Mounted Valves ... Each	**20.00**	**32.00**	**40.00**	**56.00**	**64.00**	.....	**96.00**	**112.00**	**240.00**
Face to Face, Screw End Valves, Iron Body Bronze Mounted ... In.	4¼	4½	5	6⅛	6 5/16	6½	7 5/16	8¼	9¾

75 lb. W. S. P.—All-Iron "Handy" Gate Valves, Screw Ends
For handling solutions which attack bronze but not iron.

Size ... In.	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8
Fig. 322, All-Iron Valves ... Each	**18.00**	**18.50**	**20.00**	**22.00**	**25.00**	**42.00**	**52.00**	**68.00**	**80.00**	.....	**113.00**	**146.00**	**310.00**
Face to Face, Screw End Valves, All-Iron ... In.	2¼	2¾	2¾	3 1/16	4¼	4½	5	6⅛	6 5/16	6½	7 5/16	8¼	9¾



Female Ends
Fig. 906, Globe Valve
Fig. 907, Angle Valve
Fig. 908, Cross Valve

LUNKENHEIMER

BRONZE

NEEDLE VALVES

200 Pounds Pressure

Bronze or Steel Stem

The Lunkenheimer standard for the included angle of the tapered seating face at end of stem is 30°.

Valves with steel stem have smaller seat openings than valves with bronze stem and provide finer regulation.

Diameters of seat openings are given below.

Unless otherwise specified, valves with bronze stems will be furnished.

With Union
Fig. 909, Globe Valve
Fig. 910, Angle Valve

PRICE LIST AND LEADING DIMENSIONS

Bronze Needle Valves, Bronze Stem, Rough Body

Size ..... In.	1/8	1/4	3/8	1/2
Fig. 906, Globe Valves, Female Ends ..... Each	1.90	2.00	2.20	2.80
Fig. 907, Angle Valves, Female Ends ..... Each	2.00	2.10	2.40	3.00
Fig. 908, Cross Valves, Female Ends ..... Each	3.90	4.00	6.00	7.50
Fig. 909, Globe Valves, Female Union on Outlet ..... Each	3.70	3.80	4.50	6.50
Fig. 910, Angle Valves, Female Union on Outlet ..... Each	3.20	3.40	4.00	5.80
Diameter of Seat Opening ..... In.	1/8	3/16	1/4	5/16
Face to Face, Globe Valves ..... In.	1 5/16	1 5/8	1 15/16	2 1/8
Center to Face, Angle or Cross Valves ..... In.	3/4	15/16	15/16	1 1/16
Center to End of Union ..... In.	1 3/8	1 1/2	1 11/16	1 15/16

Bronze Needle Valves, Steel Stem, Rough Body

Size ..... In.	1/8	1/4	3/8	1/2
Fig. 906, Globe Valves, Female Ends ..... Each	2.40	2.50	3.20	3.70
Fig. 907, Angle Valves, Female Ends ..... Each	2.50	2.70	3.30	4.10
Diameter of Seat Opening ..... In.	1/4	1/8	3/32	1/8
Face to Face, Globe Valves ..... In.	1 5/16	1 5/8	1 15/16	2 1/8
Center to Face, Angle Valves ..... In.	3/4	15/16	15/16	1 1/16

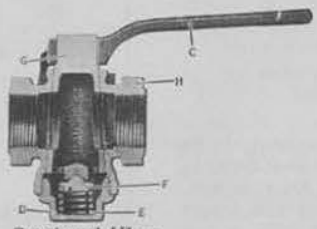
LUNKENHEIMER

BRONZE

"AIR-LIQUID" COCKS

With Stop Lugs. Air, Water, and other Liquid Service.
Male or Female Screw Ends—150 lb. Pressure.

Exterior View
Fig. 1571
Female Ends



Sectional View
Fig. 1571
Female Ends

Exterior View
Fig. 1572
Male Ends

Lunkenheimer "Air-Liquid" Cock is a packless control device, easily operated, requires no attention after installation; stays tight.

Proper seating is maintained by self-adjusting spring mechanism located at bottom of plug, which automatically takes up wear, insuring tightness.

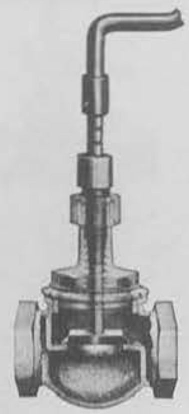
Stop lugs cast on body serve as positive open and closed stops. When handle is at right angle with pipe, cock is closed—when parallel, open.

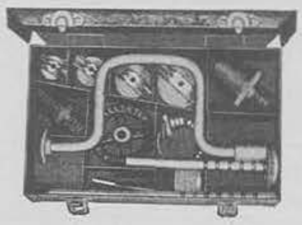
PRICE LIST

150 lb. Pressure—Bronze "Air-Liquid" Cocks

Size Pipe Thread ..... In.	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Fig. 1571, "Air-Liquid" Cock, Female Ends ..... Each	6.25	6.50	7.00	8.00	10.00	17.00	23.00
Fig. 1572, "Air-Liquid" Cock, Male Ends ..... Each	....	....	....	9.00	....	....	....

Skinner Valve and Bibb Reseating Tools





Reseats all flat and taper seat globe valves, bibbs, faucets, wall shower fixtures, ball cocks and other plumbing fixtures, in place, quickly and accurately.

With its Swedish steel cutters, operating under screw feed, it leaves the worn old seat glass-smooth, level, absolutely accurate and tight.

It is a real precision tool. Perfect alignment on all sizes, all jobs.

The valve or bibb stays in the line during reseating.

For ¼ to 2-Inch Valves and ¼ to ¾-inch Bibbs, Weight, 6 Pounds............................each **$20.00**
For ¼ to 3-Inch Valves and ¼ to ¾-Inch Bibbs, Weight, 12 Pounds............................each **30.00**

Skinner Combined Reseating Tools

For all globe and angle valves, flat or taper seat, ½ to 3 inches, all small reseating, flat, taper or oval seat from ⅛ to 1 inch. This tool is equipped with screw feed, which, combined with the positive alignment, insures absolutely accurate work. Reseating operation takes only a few minutes and the valve seat is left smooth and level.

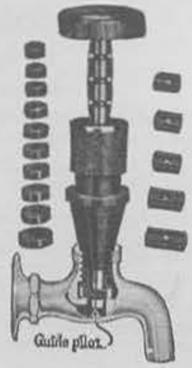
The following cutters are made of Swedish steel and are guaranteed to stay sharp for life:
45° cutters: ⅛ to ¼, 3/16 to ⅜, ¼ to ⅝, ½ to 1 inch.
Adjustable oval seat cutter, ⅛ to ¾ inch.
Flat cutter (round): ⅛, 3/16 and ¼ inch.
Flat cutter (bar): 5/16, ⅜, 7/16, ½, 9/16, ⅝, ¾-⅞, 1 inch.
Globe valve type (flat and taper): ½, ¾, 1, 1¼, 1½, 2, 2½ and 3 inches.

Operating spindles carry 6 adjustments for high and low valves and fixtures and a 3-inch extension is included for abnormally deep bathroom faucets, etc.

Packed in Duco finished hardwood case, complete with 24 cutters, bit brace, spanner, extension and full directions.

Price, Shipping Weight, 14 Pounds.............each **$45.00**

Skinner Self-Aligning Bibb Reseaters



For reseating flat seat bibbs in place.

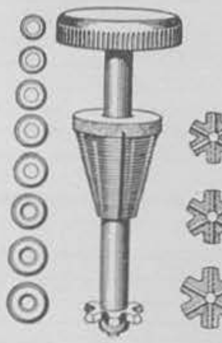
Five Skinner cutters and 12 pilots cover all flat seat bibbs, ¼ to ¾ inch. Cutters are guaranteed to stay sharp.

In operating, cutter is held down to seat by a feed screw. Tool cannot chatter; leaves the seat smooth as glass.

Packed in a strong canvas bag; the cutters and guide pilots are strung on a special wire clip.

Price, Complete...........each **$4.50**

Skinner Bibb Seat Dressers



Reseats leaky faucets, leaving seat glass smooth, accurate and tight.

Has 8 alignment guide discs, with center cutters, holding spindle in perfect alignment while cone is being tightened.

Non-chatter cone fits any faucet.

Four patented hardened and ground steel cutters, ⅜ to ¾ inch.

Chromium-plated handle and spindle.

Each.................. **$1.25**

Jenkins Composition Discs

For 150 Pounds Steam Working Pressure

No. 223, Round Hole
For ¼, ⅜, ½, 2½-inch

No. 101, Square Hole
For ¾, 1, 1¼, 1½, 2 inch

Size In.	Price Each	Size In.	Price Each	Size In.	Price Each	Size In.	Price Each
¼	$.06	2	$.36	6	$2.00	16	$8.00
⅜	.08	2½	.48	7	2.40	18	10.00
½	.08	3	.80	8	2.80	20	12.00
¾	.10	3½	1.00	9	3.60	22	15.00
1	.12	4	1.20	10	4.50	24	18.00
1¼	.18	4½	1.40	12	5.00	..	.....
1½	.24	5	1.60	14	7.00	..	.....

Square hole made only in ¾, 1, 1¼, 1½ and 2 inches.

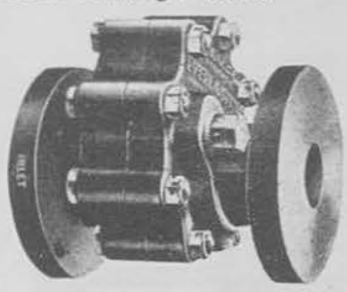
We can supply valve discs for any special service; let us have your inquiries.

Our desire is to have you come to us for your every day requirements.

Everlasting Regular Iron Body Blow-Off Valves

For 250 Pounds Steam Working Pressure

Screwed



Flanged

This valve is endorsed by leading consulting stationary, marine engineers and chemical industries.

Accepted by boiler inspection insurance companies.

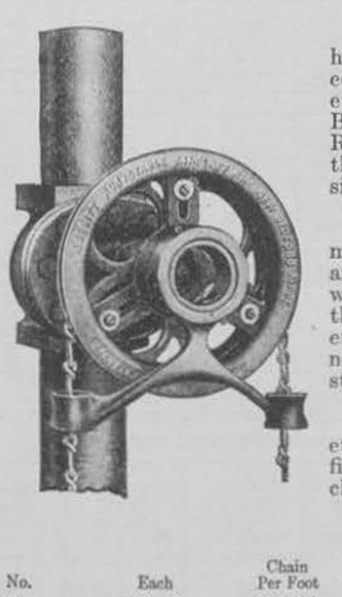
Approved by all provincial governments requiring high pressure valves and accessories to be registered and recorded. Provincial record numbers furnished on request.

Size In.	Straight Lever Type Screwed Each	Straight Lever Type Flanged Each	Rack and Pinion Screwed Each	Rack and Pinion Flanged Each	Approximate Face to Face In. Screwed	Approximate Face to Face In. Flanged	Diam. Flanges In.
¾	$11.00	......	......	......	3	....	....
1	11.00	$15.00	......	......	3½	7¼	4⅞
1¼	16.00	19.00	......	......	3⅜	7¼	5¼
1½	22.00	26.00	$28.00	$32.00	4¼	8⅛	6⅛
2	25.00	30.00	34.50	39.00	4⅜	8⅞	6½
2½	32.00	39.00	40.00	47.00	5⅛	10¼	7½
3	44.00	50.00	54.00	60.00	6⅜	11⅞	8¼
4	70.00	78.00	80.00	88.00	6⅞	12	10
*6	.....	.....	240.00	255.00	7½	13	....

*Prices for straight lever type upon application.

Babbitt Adjustable Sprocket Rims

With Chain Guides



Every valve in an overhead pipe line should be equipped for immediate operation from the floor. The Babbitt Adjustable Sprocket Rim and Chain Guide gives this instantaneous control by simply pulling the chain.

The rim is adjustable and may be quickly attached to any type of valve wheel whether used for controlling the flow of steam, gas, water, or other liquids, and does not interfere with the rising stem.

When ordering give diameter of valve wheel to be fitted and number of feet of chain required.

No.	Each	Chain Per Foot	Diameter Sprocket Wheel Inches	Will Fit Valve Wheels Diameter Inches
0	$2.40	$.10½	4	2 to 3½
1	4.00	.14	5½	3½ to 5
1½	5.20	.14	7	5½ to 6½
2	6.40	.14	9	7 to 8½
2½	8.80	.22	12	8 to 11½
3	10.80	.22	15	11 to 14½
3½	15.20	.22	19	15 to 18½
4	20.00	.37	22	19 to 21½
4½	28.00	.37	26	22 to 25½
5	32.00	.37	30	26 to 30

Brass Steam Cocks

Flat and Square Head
For 100 Pounds Steam Working Pressure

Flat Head

Size In.	Price, Each Flat or Sq. Head	Price, Each Sq. Hd. With Check
¼	.85	....
⅜	1.00	....
½	1.25	1.40
¾	1.70	1.90
1	2.35	2.55
1¼	3.70	3.95
1½	4.85	5.15
2	7.30	7.65
2½	14.50	....
3	22.50	....
*3½	38.50	....
*4	50.00	....

Square Head

*Furnished to order only at special prices.
Flat head furnished unless otherwise ordered.

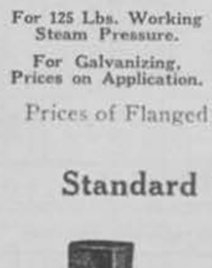
Three-way Brass Steam Cocks

Square Head—With Check

For 100 Pounds Steam Working Pressure
With Extra Large Plug and Full Opening

Size In.	Price Each	Size In.	Price Each	Size In.	Price Each
¼	1.80	1	3.75	2½	18.75
⅜	2.10	1¼	5.75	3	26.00
½	2.50	1½	7.15	...	.....
¾	3.00	2	11.00	...	.....

Standard Iron Cocks



Square or Flat Heads.

For 125 Lbs. Working Steam Pressure.

For Galvanizing, Prices on Application.

Size Inches	Screwed, Each: All Iron	With Bronze Washer	With Bronze Plug	With Bronze Plug and Washer
½	.90	1.00	1.30	1.40
¾	1.05	1.20	1.60	1.75
1	1.30	1.55	1.90	2.15
1¼	1.60	1.95	2.65	3.00
1½	1.95	2.35	3.75	4.15
2	2.70	3.20	5.25	5.75
2½	4.40	5.15	8.75	9.50
3	6.75	7.75	13.00	14.00
3½	12.00	14.00	27.50	29.50
4	15.50	19.00	36.50	40.00
5	32.00	38.00	67.00	73.00
6	45.00	53.00	94.00	102.00
8	100.00	110.00	200.00	210.00

Prices of Flanged Standard Cocks—Upon Application.

Standard Three-Way Iron Cocks

For 125 Lbs. Working Steam Pressure.

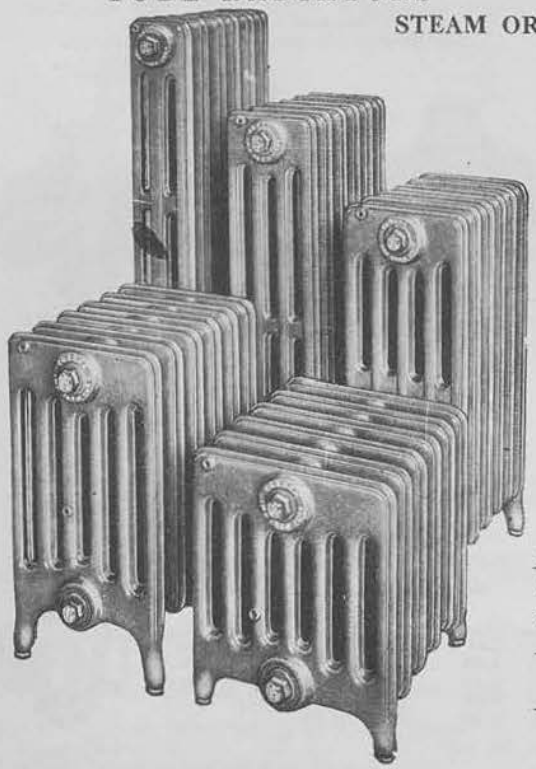
For Galvanizing, Prices on Application.

Size Inches	Screwed, Each: All Iron	With Bronze Washer	With Bronze Plug	With Bronze Plug and Washer
¾	1.65	1.80	2.20	2.35
1	1.80	2.05	2.40	2.65
1¼	2.05	2.40	3.10	3.45
1½	2.65	3.05	4.50	4.90
2	3.65	4.15	6.25	6.75
2½	5.35	6.10	9.75	10.50
3	7.50	8.50	13.75	14.75
3½	14.00	16.00	30.00	32.00
4	19.00	22.50	40.00	43.50
5	36.50	42.50	71.50	77.50
6	52.00	60.00	100.00	108.00

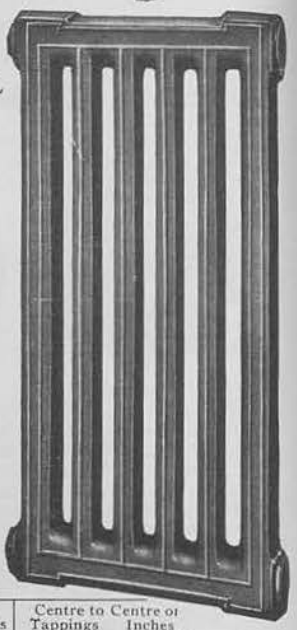
Prices of Flanged Three-Way Cocks—Upon Application.

TUBE RADIATORS WALL RADIATORS

STEAM OR WATER



IMPERIAL



KING

Imperial Design assembled Vertical only.

King Design assembled both Vertical and Horizontal.

Sq. Ft. Per Section	Description	Length or Height Inches	Width Inches	Thickness of Hub Inches	Centre to Centre of Tappings Inches	
					End of Section	Side of Section
9	Imperial	28 3/4	13 3/16	3 1/16	....	25 1/8
7	Imperial	21 7/8	13 3/16	3 1/16	....	18 1/16
9	King	23 3/16	13	3 1/4	10 1/16	20 1/8
7	King	23 3/16	13	3	10 1/16	20 1/8
6	King	20 1/16	13	3	10 1/4	17 11/16
5	King	17	13	3	10 5/16	14 5/16

TUBE RADIATORS STEAM OR WATER

THREE TUBE—Width 5″

Number of Sections	Length, 2 1/2 inch Per Section	Heating Surface—Square Feet: 38-inch Height 3 1/2 Sq. Ft. Per Section	32-inch Height 3 Sq. Ft. Per Section	26-inch Height 2 1/4 Sq. Ft. Per Section	20-inch Height 1 3/4 Sq. Ft. Per Section
2	5	7	6	4 3/8	3 1/2
3	7 1/2	10 1/2	9	7	5 1/4
4	10	14	12	9 1/8	7
5	12 1/2	17 1/2	15	11 3/8	8 3/4
6	15	21	18	14	10 1/2
7	17 1/2	24 1/2	21	16 1/8	12 1/4
8	20	28	24	18 3/8	14
9	22 1/2	31 1/2	27	21	15 3/4
10	25	35	30	23 3/8	17 1/2
11	27 1/2	38 1/2	33	25 3/8	19 1/4
12	30	42	36	28	21
13	32 1/2	45 1/2	39	30 1/8	22 3/4
14	35	49	42	32 3/8	24 1/2
15	37 1/2	52 1/2	45	35	26 1/4

FIVE TUBE—Width 8 3/4″

Number of Sections	Length, 2 1/2 inch Per Section	Heating Surface—Square Feet: 38-inch Height 5 Sq. Ft. Per Section	32-inch Height 4 3/4 Sq. Ft. Per Section	26-inch Height 3 1/4 Sq. Ft. Per Section	20-inch Height 2 1/2 Sq. Ft. Per Section
2	5	10	8 2/3	7	5 1/8
3	7 1/2	15	13	10 1/8	8
4	10	20	17 1/8	14	10 2/3
5	12 1/2	25	21 3/8	17 1/2	13 1/3
6	15	30	26	21	16
7	17 1/2	35	30 1/8	24 1/2	18 2/3
8	20	40	34 2/3	28	21 1/3
9	22 1/2	45	39	31 1/2	24
10	25	50	43 1/3	35	26 2/3
11	27 1/2	55	47 2/3	38 1/2	29 1/3
12	30	60	52	42	32
13	32 1/2	65	56 1/3	45 1/2	34 2/3
14	35	70	60 2/3	49	37 1/3
15	37 1/2	75	65	52 1/2	40

FOUR TUBE—Width 6 7/8″

Number of Sections	Length, 2 1/2 inch Per Section	Heating Surface—Square Feet: 38-inch Height 4 1/4 Sq. Ft. Per Section	32-inch Height 3 1/2 Sq. Ft. Per Section	26-inch Height 2 3/4 Sq. Ft. Per Section	20-inch Height 2 1/4 Sq. Ft. Per Section
2	5	8 1/2	7	5 1/2	4 1/2
3	7 1/2	12 3/4	10 1/2	8 1/4	6 3/4
4	10	17	14	11	9
5	12 1/2	21 1/4	17 1/2	13 3/4	11 1/4
6	15	25 1/2	21	16 1/2	13 1/2
7	17 1/2	29 3/4	24 1/2	19 1/4	15 3/4
8	20	34	28	22	18
9	22 1/2	38 1/4	31 1/2	24 3/4	20 1/4
10	25	42 1/2	35	27 1/2	22 1/2
11	27 1/2	46 3/4	38 1/2	30 1/4	24 3/4
12	30	51	42	33	27
13	32 1/2	55 1/4	45 1/2	35 3/4	29 1/4
14	35	59 1/2	49	38 1/2	31 1/2
15	37 1/2	63 3/4	52 1/2	41 1/4	33 3/4

SIX TUBE—Width 10 5/8″

Number of Sections	Length, 2 1/2 inch Per Section	Heating Surface—Square Feet: 38-inch Height 6 Sq. Ft. Per Section	32-inch Height 5 Sq. Ft. Per Section	26-inch Height 4 Sq. Ft. Per Section	20-inch Height 3 Sq. Ft. Per Section
2	5	12	10	8	6
3	7 1/2	18	15	12	9
4	10	24	20	16	12
5	12 1/2	30	25	20	15
6	15	36	30	24	18
7	17 1/2	42	35	28	21
8	20	48	40	32	24
9	22 1/2	54	45	36	27
10	25	60	50	40	30
11	27 1/2	66	55	44	33
12	30	72	60	48	36
13	32 1/2	78	65	52	39
14	35	84	70	56	42
15	37 1/2	90	75	60	45

UNIT HEATERS

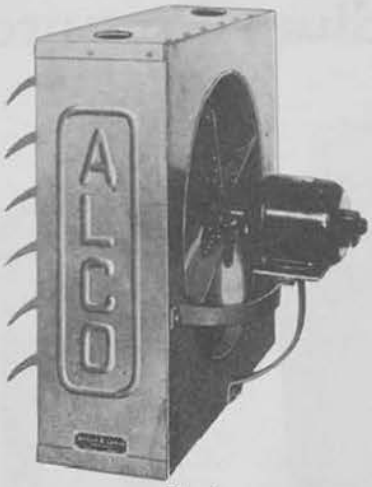


Fig. 1
ALCO TYPE "A" UNIT HEATER

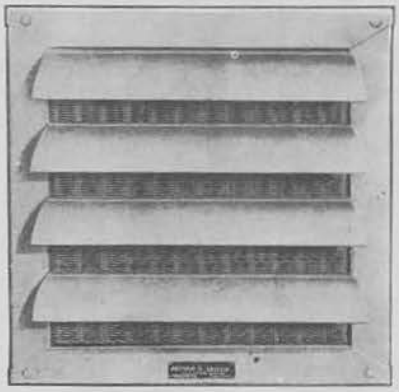


Fig. 2
FRONT VIEW TYPE "A" UNIT

Fig. 3
ALCO TYPE "A"
DELUXE UNIT HEATER

CAPACITIES OF ALCO TYPE "A" UNIT HEATERS

(Based on Steam at 2-lb. Gauge Pressure and Entering Air at 60° F.)

CONSTANT SPEED—25 CYCLES							THREE SPEED—25 CYCLES							
MODEL NUMBER	H.P. MOTOR	SPEED R.P.M.	AIR CAP C.F.M.	CAP. B.T.U. PER HOUR	CAP. E.D.R.	OUTLET VELOCITY F.P.M.	MODEL NUMBER	H.P. MOTOR	SPEED R.P.M.	AIR CAP. C.F.M.	CAP. B.T.U. PER HOUR	CAP. E.D.R.	OUTLET VELOCITY F.P.M.	WGHT.
162	1/20	1425	500	40,000	167	500	162	1/30	1390 1100 890	450 330 240	37,000 30,000 26,000	154 125 108	450 330 240	120
212	1/20	1425	600	46,000	192	600	212	1/30	1390 1100 890	550 400 290	43,000 34,000 27,000	179 141 113	550 400 290	120
218	1/10 1/20	1425 710	750 430	53,000 36,000	221 150	750 430	218	1/20	1390 1100 890	700 600 450	50,000 46,000 37,000	208 192 154	700 600 450	120
318	1/10 1/20	1425 710	900 500	60,000 40,000	250 167	900 500	318	1/10	1425 1100 800	900 650 460	60,000 48,000 38,000	250 200 158	900 650 460	130
405	1/6 1/10	1425 710	1300 700	82,500 54,000	344 225	1040 560	405	1/6	1425 1100 800	1300 1050 800	82,500 71,000 58,000	344 296 242	1040 840 640	140
409	1/6 1/10	1425 710	1600 900	101,000 70,000	420 292	1020 580	409	1/6	1425 1100 800	1600 1000 900	101,000 73,000 68,000	420 304 283	1020 640 580	155
509	1/4 1/6	1425 710	2000 1020	124,000 78,000	517 325	1120 575	509	1/4	1425 1080 800	2000 1500 1000	124,000 102,000 76,000	517 425 316	1060 800 530	180
612	1/4 1/6	1425 710	2250 1200	146,000 94,000	608 392	1000 535	612	1/4	1425 1080 800	2250 1650 1100	146,000 117,000 101,000	608 488 420	1000 730 490	200
712	1/4 1/6	1425 710	2650 1400	162,000 108,000	676 450	1180 620	712	1/4	1425 1080 800	2650 1950 1300	162,000 130,000 99,000	676 542 412	1180 870 580	210
812	1/4 1/6	1425 710	3000 2000	183,000 141,000	763 587	1140 770	812	1/4	1425 1080 800	3000 2200 1600	183,000 149,000 120,000	763 621 500	1140 840 610	220
912	1/4 1/6	1425 710	3200 2100	205,000 153,000	854 638	1040 690	912	1/4	1425 1080 800	3200 2350 1750	205,000 165,000 134,000	854 687 558	1040 770 570	230
1012	1/3 1/4	1425 710	3500 2300	232,000 180,000	967 750	875 575	1012	1/3	1425 1050 770	3500 2600 1900	232,000 192,000 156,000	967 800 650	875 650 475	240
1112	1/2 1/4	1425 710	4000 2900	260,000 204,000	1083 850	1000 720	1112	1/2	1425 1020 750	4000 3000 2000	260,000 212,000 160,000	1083 883 667	1000 750 500	255
1212	1/2 1/3	1425 710	4800 3200	282,000 220,000	1174 918	1200 800	1212	1/2	1425 1020 750	4800 3300 2200	282,000 224,000 172,000	1174 933 716	1200 825 550	260
1412	1/2	710	5200	350,000	1460	830	1412	1/2	710 640 530	5200 4300 3400	350,000 312,000 262,000	1460 1300 1080	830 690 545	440
1612	1/2	710	6000	394,000	1640	960	1612	1/2	710 640 530	6000 4800 3900	394,000 324,000 286,000	1640 1350 1190	960 770 625	460

Armstrong Traps for Medium Pressures

ARMSTRONG TRAPS, in the models pictured here, all include the patented, free-floating valve mechanism and, with the exception of the Nos. 200 and 201, all traps are very similar in appearance. In the No. 200, the center line of the pipe connection runs horizontally through the trap; while in Nos. 211 to 216 inclusive, the center line of the pipe connections is vertical and exactly through the center. The angle connections of the No. 201 size facilitate both new and replacement installations.

On all sizes, an auxiliary outlet tapping is provided in the cap for the convenience of those who wish to install test valves.

The Body and Cap are a modern alloy of cast-semi-steel containing nickel and chromium, close grained, and of a high tensile strength. Both parts are designed to withstand pressures many times the recommended operating pressures. The cap is secured to the body by equally spaced steel bolts. Uniform pressure on the gasket and a leak-proof joint are obtained.

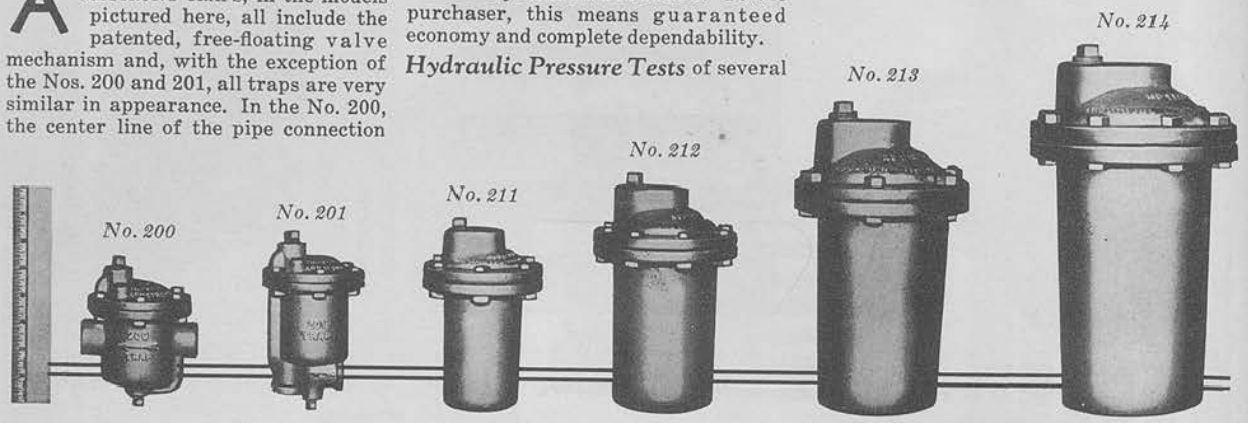
The Valve and Seat are of special chrome steel alloy, heat treated and stainless. The application of this metal was developed by Armstrong as an improvement over hardened bronze and other alloys previously used.

The Bucket is made of seamless brass tubing for general service, but can be furnished in *stainless steel* for special applications. The bucket is open at the lower end and therefore free from danger of collapsing. The open end is reenforced with a cast iron ring which also gives the bucket proper balance and provides the necessary weight to open the valve against pressure.

The Valve Lever, guide pins and bucket strap are all manufactured from stainless steel which permits great strength without excessive bulk or weight. These parts are polished and are immune to corrosion.

Interchangeability is a characteristic of all Armstrong trap parts. The large annual production permits the finest degree of standardization and uniformity in manufacture. To the purchaser, this means guaranteed economy and complete dependability.

Hydraulic Pressure Tests of several times maximum recommended pressure are performed on each completed trap, at which time it is examined for casting, gasket and valve leaks.



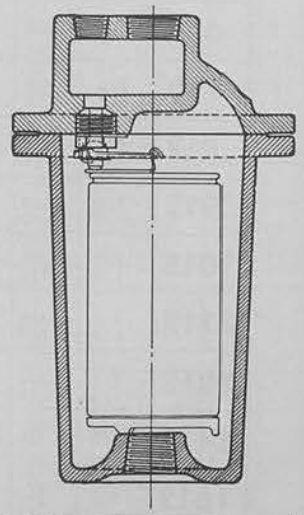
For General Service

TRAPS Nos. 200 and 201 are the most compact and inexpensive traps ever developed to embody the genuine inverted bucket principle. The low installed cost of these traps makes them favorites for trapping individual coils and chambers of all types of heating and processsing equipment. Small unit heaters, garment presses, chests on flat work ironers, heating coils in industrial plants, hospital sterilizers, individual lines in greenhouses, glue pots,—these are but a sample of the hundreds of applications for these traps. Straight-through and angle pipe connections make installation particularly easy.

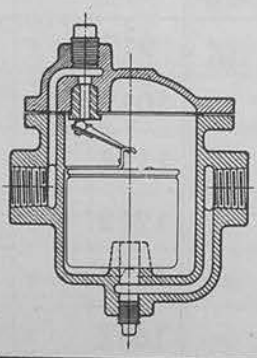
Traps Nos. 211 and 212 are for pressures up to 200 lbs. They are regularly furnished with ½" pipe connections. No. 211 has a capacity as high as 1000 lbs. per hour at 10 lbs. pressure, while No. 212 is a step higher at about 1900 lbs. per hour.

Traps Nos. 213, 214, 215 and 216 are for pressures up to 250 lbs. They are particularly suitable for draining separators, evaporating units, big kettles and cooking vats, water heaters, stills and oil refinery units, big laundry machines, etc.

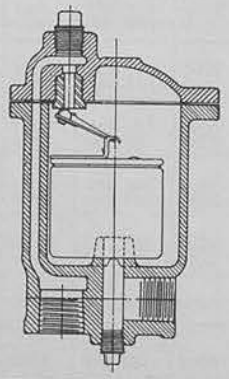
Cross-section showing construction of all traps larger than Nos. 200 and 201.



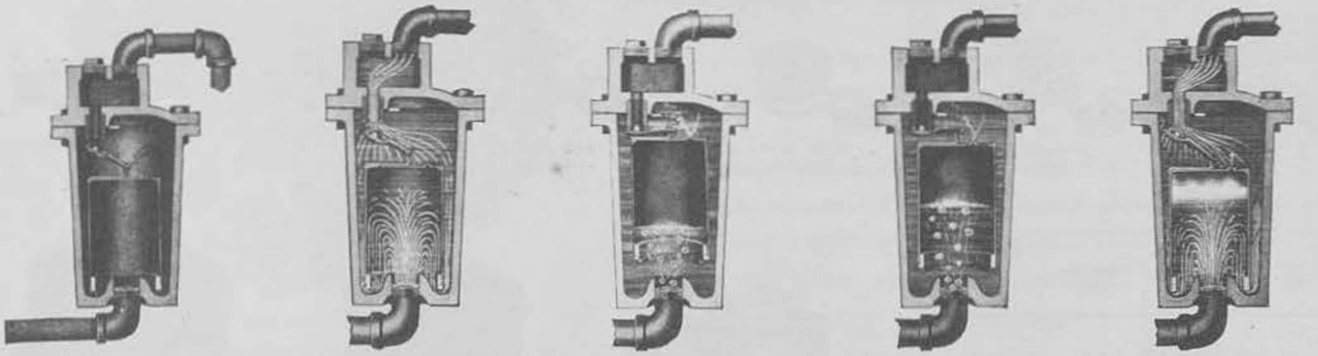
Cross-section of No. 200 trap.



Cross-section of No. 201 trap.



How the Armstrong Trap Works



Steam off. Bucket down. Valve open. Inlet bottom. Outlet top. When steam is turned on, water fills body. Excess water escapes thru orifice until steam reaches trap and fills bucket which floats and closes orifice. When steam condenses water enters. Bucket loses buoyancy, pulls on lever. When weight of bucket times leverage equals pressure on valve, trap opens.

Selecting the Trap

Facts Needed. It is obvious that before a steam trap can be selected, it is necessary to know: (1) the difference in pressure between the trap inlet and the discharge line, (2) the amount of condensate the trap will have to handle, (3) whether or not condensate is formed at a uniform rate and (4) whether or not the operating pressure is constant.

Pressure. The trap should be selected for the *actual* operating pressure. This is not necessarily the boiler pressure, but it is always the gauge pressure at the trap itself, plus the vacuum or minus the pressure in the return line.

Back Pressure. Pressure in the discharge line, or "back pressure," is of several kinds. A definite back pressure may be deliberately maintained in the system. The discharge line may rise higher than the trap in which case the static head of condensate in the discharge line will produce a back pressure of approximately 1 lb. for every 2.3 ft. of elevation. Back pressure is also created by *flash steam*, small diameter discharge lines, elbows and other fittings. The sum of all these types of back pressure must of course be deducted from the inlet pressure to get the differential or actual operating pressure through the trap.

Vacuum. If there is a vacuum in the return line, the amount of vacuum must be added to the trap pressure to obtain the differential pressure. For instance, if there is a 60-lb. pressure at the trap and 20" (or approximately 10-lb.) of vacuum in the return line, then the working differential through the trap is 70-lb. and an orifice for that pressure must be used. The scale which appears along the bottom of this page offers a convenient guide for converting vacuum in inches into pounds.

Condensate. When condensate is produced at a fairly uniform rate and the working pressure remains practically constant, it is a very simple matter to select the proper size of trap from the capacity chart

SIZES AND LIST PRICES

TRAP SIZE	No. 200	No. 201	No. 211	No. 212	No. 213	No. 214	No. 215	No. 216
Pipe Connections	½"	½"	½"	½"	½" or ¾"	1"	1" or 1¼"	1½" or 2"
List Price, Standard Trap	$10.25	$10.25	$13.35	$22.00	$30.65	$42.50	$56.00	$80.67
Telegraph Code	Acacia	Acanthus	Aspen	Birch	Walnut	Hemlock	Larch	Tamarack
Height	4 11/16"	5⅜"	6⅜"	8"	10¼"	12½"	14"	16¾"
Diameter	4¼"	3¾"	4⅛"	5"	6⅜"	7½"	8½"	10 3/16"
Weight	4 lbs.	4 lbs.	5½ lbs.	10½ lbs.	19 lbs.	32 lbs.	47 lbs.	76 lbs.
Maximum Pressure	125	125	200	200	250	250	250	250

STRAINERS

Working Pressure 250 Lbs.

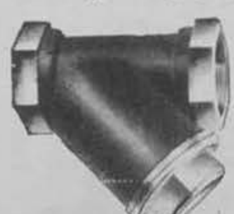


Fig. 5350—Screwed
Fig. 5351—Flanged

Fig. 5350—SCREWED

Size........Inches	¼	⅜	½	¾	1	1¼	1½	2
Fig. 5350—Bronze, Screwed......Each	2.40	3.00	3.80	3.80	5.20	7.20	10.00	15.00

Fig. 5351—FLANGED

Size........Inches	2½	3	3½	4	5	6
Fig. 5351—Iron Body, Flanged........Each	28.00	36.00	45.00	50.00	72.00	94.00

DUNHAM RADIATOR TRAPS

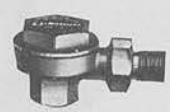
For Normal Operating Pressures Not Exceeding 5 Pounds Gauge (Maximum—15 pounds; Minimum—15 Inches Vacuum)

Angle Pattern

Straightway Pattern

Right Hand Pattern

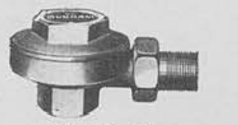
Left Hand Pattern



Trap No. 1A

Trap No. 2B

Size No.	Pattern	Tappings Inches	Capacity Sq. Ft. EDR
1A	A.P. S.W. R.H. L.H.	½	200
2B	A.P. S.W. R.H. L.H.	½	400
2B	A.P. S.W. R.H. L.H.	¾	400
3A	A.P. S.W. R.H. L.H.	¾	700
4A	A.P. S.W.	¾	1200
5A	A.P. S.W.	1	3000



Trap No. 3A

Trap No. 4A

Trap No. 5A

NOTES

The Nos. 1A, 2B and 3A Traps have bronze body and cover, regularly furnished nickel-plated, and with union nut and nipple, threaded right hand. Supplied in Angle, Straightway, Right Hand or Left Hand Pattern. The Nos. 4A and 5A Traps have cast iron body and cover. Supplied in Angle and Straightway Pattern, with right hand female pipe tappings at inlet and outlet.

Traps Nos. 1A, 2B and 3A can be furnished chromium-plated on special order.

Monel Metal discs and valves can be furnished on special order.

Specify Catalog Number or Type Number and size on order. *When not otherwise stipulated on order, the standard Angle Pattern Traps of size called for will be furnished.*

Ratings are based upon ¼ lb. condensation per square foot of equivalent direct radiation per hour and a 1½ pound pressure differential.

Dole Valves

No. 1 Air Valve
No. 1 Vari-Vent Air Valve

This valve is for venting radiators of one or two-pipe gravity steam heating systems. Easily installed on any cast iron radiator. Extra large venting port insures quicker heating. Siphon tube enables proper drainage of valve. Will not "stick." Float construction prevents spitting of water. Made with and without Dole Vari-Vent feature. Dole No. 1 Vari-Vent Air Valve is especially efficient when used on oil, gas or stoker-fired systems. Chrome plated. Packed in individual cartons, 12 cartons to standard package. Net shipping weight 2½ oz. each.

No. 2 Vacuum Valve

A good vacuum valve at a low cost. For venting radiators of one-pipe vacuum systems. Piston check vacuum seal. Chrome plated. Tissue wrapped, 12 valves to display box. Net shipping weight, 3¾ oz. each.

No. 6 Vacuum Valve

(straight shank, ¼" I.P.T.)

A good vacuum valve at a low cost. For venting steam mains of one-pipe vacuum systems. Piston check vacuum seal. Chrome plated. Tissue wrapped, 12 valves to box. Net shipping weight, 4 oz. each.

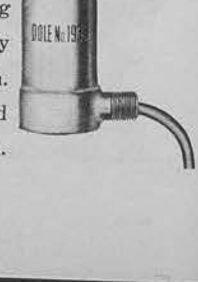
No. 3A Air Valve (straight shank ⅛" I.P.T.)
No. 3B Air Valve (straight shank ¼" I.P.T.)
No. 3C Air Valve

(straight shank) { ¾" I.P.T. Male / ⅜" I.P.T. Female

These are all-purpose straight shank air valves. Equally efficient for venting steam mains, drop risers, pipe coils, convection and unit heaters of one or two-pipe gravity steam systems. Positively will not "stick" or spit water. Chrome plated. Packed in individual cartons, 12 cartons to standard package. Net shipping weights each No. 3A, 3½ oz., No. 3B, 4 oz., No. 3C, 5 oz.

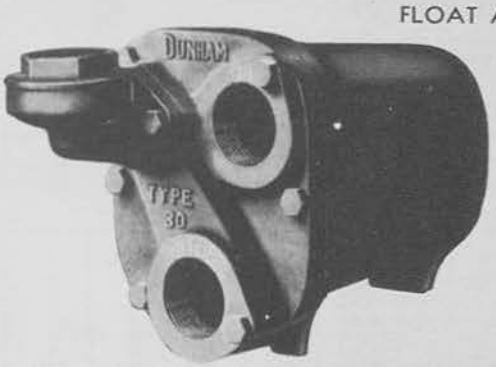
No. 1933 Air Valve

This popularly priced valve is for venting radiators of one or two-pipe gravity steam systems. Bright nickel finish. Wrapped in tissue, 12 valves to standard package. Net shipping weight 3 oz. each.



DUNHAM

FLOAT AND THERMOSTATIC TRAP



Dunham Float and Thermostatic Trap.

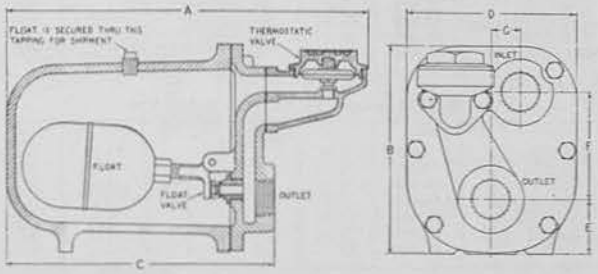
TYPE 30

This trap is a combination of the Dunham Thermostatic Radiator Trap and a Float Trap. The assembly is designed so that the thermostatic trap discharges air while the float trap discharges water only. This arrangement gives the high peak water-handling and air-venting capacity needed for applications such as the dripping of low-pressure steam heating mains and risers.

ENGINEERING DATA—Traps Nos. 30-3, 30-4, 30-5, 30-7, 30-8

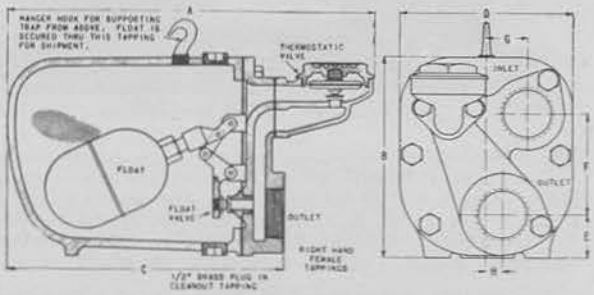
For Normal Operating Pressures Not Exceeding 5 Pounds Gauge

(Maximum—15 Pounds; Minimum—15 Inches Vacuum)



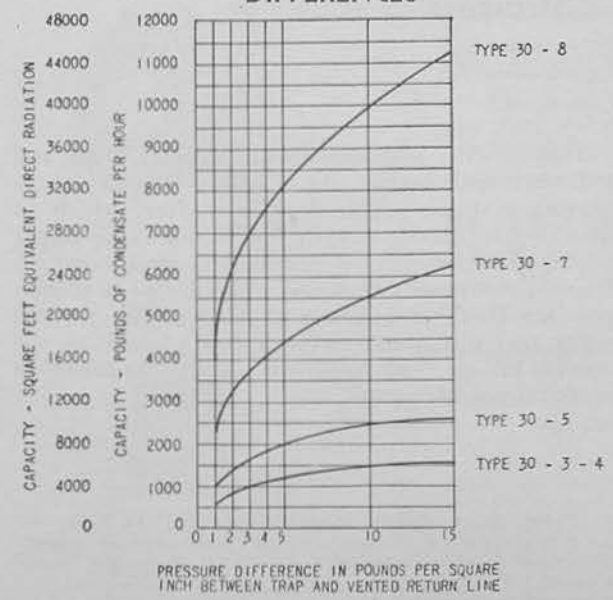
Traps Nos. 30-3, 30-4, 30-5 and 30-7.

Size	Capacity Sq. Ft. EDR	Size, Connections Inches
30-3	2,800	¾
30-4	2,800	1
30-5	4,800	1¼
30-7	9,600	1½
30-8	20,000	2



Trap No. 30-8

CAPACITIES AT VARIOUS PRESSURE DIFFERENCES



NOTES

All connections are right hand female tappings.

All traps can be tapped for gauge glass set which can be furnished when specified.

Monel metal thermostatic discs and valves as well as float valves and seats can be furnished on special order.

Orders should specify Catalog No. or Type Number and Size.

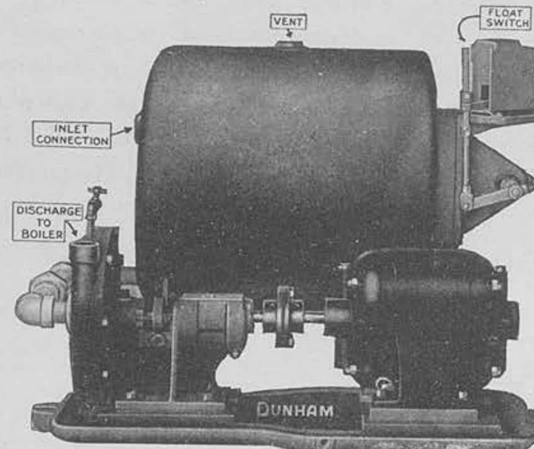
Capacities given in the above table are based on a condensation rate of ¼-lb. condensate per square foot of equivalent direct radiation per hour at a pressure differential of 2 lbs. gauge.

←

On float and thermostatic trap applications where the pressure difference between inlet and outlet of trap is constantly maintained at greater than 2 pounds per square inch, the capacities are increased and trap may be selected accordingly.

DUNHAM
Type CH Condensation Pumps

These horizontal type condensation pumps are built for service with discharge pressures at the pump from 15 to 45 pounds on 60 cycle A.C. and D.C., and 15 to 30 pounds on 25 or 50 cycle current and capacities from 2000 to 45,000 EDR or from 3 to 70 U.S. GPM of water.



Type CH Condensation Pump and Receiver

Construction

The Type CH Pump is bronze-fitted and has a non-corrosive shaft. The case is of volute design. The impeller is of the enclosed type and is hydraulically and dynamically balanced for high efficiency and long life. Bearings of liberal size insure maximum length of service with minimum attention.

The pump is driven by an electric motor direct-connected through a flexible coupling. The pump and motor are assembled as a unit on a rigid cast iron base. The Receiver Tank, equipped with float switch, is provided with saddles for mounting permitting an adaptable installation arrangement where unusual space conditions are encountered. The Receiver must always be installed with its outlet level with or above the top of the pump casing. Completeness of equipment, the avoidance of extras, and long trouble-free service have given these pumps great popularity in the boiler room.

Pump Cat. No.	H.P. Motor	Cap. Sq. Ft. EDR	U.S. GPM Rad'n will Condense	Cap. of Pump U.S. GPM	Tappings—Inches		Approx. Ship Wt. Lb
					Receiver Inlet	Pump Discharge	
15 Lb Press.— 25 Cycle, 1425 RPM							
CHO215	¼	**2000**	1	3	1½	1	170
CHO415	⅓	**4000**	2	6	2	1	400
CHO615	½	**6000**	3	9	3	1	450
CHO815	½	**8000**	4	12	3	1	475
CHO1015	¾	**10,000**	5	15	3	1	475
CHO1515	1	**15,000**	7.5	21	4	1	500
CHO2515	1	**25,000**	12.5	35	4	1	500
CHO3515	1½	**35,000**	18	50	4	*1¼	635
CHO4515	1½	**45,000**	23	70	4	*1½	650
20 Lb Press.— 25 Cycle, 1425 RPM							
CHO220	⅓	**2000**	1	3	1½	*1	180
CHO620	¾	**6000**	3	9	3	*1	450
CHO820	¾	**8000**	4	12	3	*1	475
CHO1020	¾	**10,000**	5	15	3	*1	475
CHO1520	1	**15,000**	7.5	21	4	*1¼	600
CHO2520	1½	**25,000**	12.5	35	4	*1¼	600
CHO3520	2	**35,000**	18	45	4	*1¼	650
CHO4520	2	**45,000**	23	70	4	*1½	650
30 Lb Press.— 25 Cycle, 1425 RPM							
CHO630	2	**6000**	3	9	3	*1¼	500
CHO830	2	**8000**	4	12	3	*1¼	525
CHO1030	2	**10,000**	5	15	3	*1¼	525
CHO1530	2	**15,000**	7.5	21	4	*1¼	550
CHO2530	3	**25,000**	12.5	35	4	*1¼	550
CHO3530	3	**35,000**	18	50	4	*1¼	575
CHO4530	3	**45,000**	23	70	4	*1¼	575

Units with 1½ H.P. motors or smaller for single phase, A.C. are not supplied with starter or protective fuses.

Units with 2 H.P. motors or larger for single phase, A.C. are supplied with across-the-line type automatic starters with overload protection afforded by thermal relays.

Units with 5 H.P. motors or smaller for 2 or 3 phase A.C. are supplied with manual motor starters with overload protection provided by thermal relays.

Units are not supplied with fused disconnect switches.

DUNHAM "Y" Strainers
TYPE 211

Type 211 Strainer and Sieve

Size Inches
½
¾
1
1¼
1½
2

CONSTRUCTION

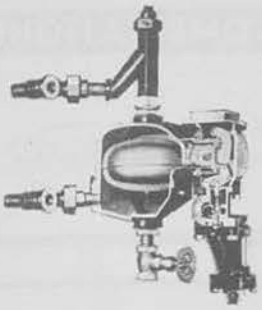
This strainer is built of the best soft grey iron casting, heavy and durable, with easily removable cover and sieve. The sieve is of 22-gauge brass sheet having .079-inch diameter holes. 81 holes to the square inch. The sieve is inserted from the bottom and held in position by recesses in the body casting and plug. All sizes have right hand female pipe tappings.

This Strainer is designed to catch dirt, scale and sediment and permit their removal from steam heating systems. This foreign matter, which in time would interfere with circulation and might impair the efficiency of mechanical equipment, is trapped and readily removed. The design is simple, provides liberal flow area and prevents an internal water seal thus maintaining a free passage to the point of release. The Strainer is suitable for pressures up to 60 pounds gauge.

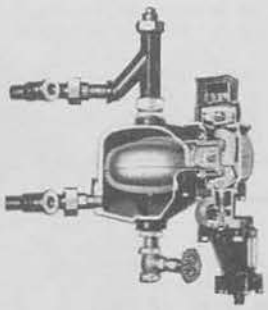
Where larger flanged strainers from 2½″ to 6″ in size are required for use ahead of vacuum pumps or boiler return traps and pumps, Dunham Type 210 Strainers are recommended. Full information will be furnished on request.

McDONNELL

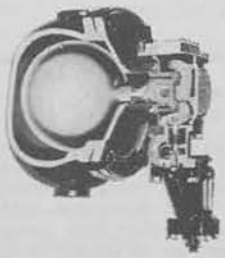
FEEDERS AND FEEDER-CUT-OFF COMBINATIONS



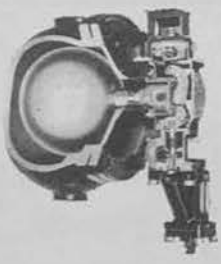
No. 47



No. 47-2



No. 51



No. 51-2

No. 2

Description

No. 47 Boiler Water Feeder

For all hand fired steam boilers rated up to 5,000 sq. ft. capacity. Maximum steam pressure, 25 lbs. Maximum water pressure, 150 lbs.

The reliable, time-tested feeder for the largest class of heating boilers. Has the McDonnell Quick-Hook-Up (Patent No. 1,997,785) which simplifies installation, assures correct feeding level, and guarantees correct reproduction of boiler water line in float chamber. Has isolated "Cool Feed Valve" (Patent No. 1,934,486) which prevents lime formation and sticking; double sylphon construction, eliminating packing and binding; straight thrust cam-and-roller valve action which assures tight valve closure; large-area built-in strainer; stainless steel valve and other refinements.

Body also has 1" tappings for 1" equalizing pipe hook-up if Quick-Hook-Up cannot be used. Feed water piping ½". **Shipping weight, 30 lbs.**

No. 47-2 Combined Boiler Water Feeder and Low Water Cut-off

For all automatically fired steam boilers rated up to 5,000 sq ft. capacity. Maximum steam pressure, 25 lbs. Maximum water pressure, 150 lbs.

The device that "makes the boiler water level as automatic as the firing." Same construction as No. 47 described above, with No. 2 Cut-off Switch added. **Shipping weight, 31 lbs.**

No. 51 Boiler Water Feeder

For those larger boilers, rated above 5,000 sq. ft. capacity. Maximum steam pressure, 25 lbs. Maximum water pressure, 150 lbs.

Has the same basic features as the No. 47 described above, but has the larger valve required for larger boilers. It is not supplied with Quick-Hook-Up.

Body tappings 1" for 1" equalizing pipes. Feed water piping, ¾". **Shipping weight, 43 lbs.**

No. 51-2 Combined Boiler Water Feeder and Low Water Cut-off

For the larger automatically fired boilers, rated above 5,000 sq. ft. capacity. Maximum steam pressure, 25 lbs. Maximum water pressure, 150 lbs.

Same construction as No. 51, with No. 2 Cut-off Switch added. **Shipping weight, 43 lbs.**

No. 53 Boiler Water Feeder

For higher pressure hand fired boilers of any size, operating at pressures from 25 to 75 lbs. (Water pressure must exceed steam pressure by at least 10 lbs.)

Same basic features and hook-up as No. 51, but has double-ply sylphon, heavy duty float, and more rugged construction to withstand higher pressures. **Shipping weight, 44 lbs.**

No. 53-2 Combined Boiler Water Feeder and Low Water Cut-off

For automatically fired boilers of any size, operating at pressures from 25 to 75 lbs. (Water pressure must exceed steam pressure by at least 10 lbs.)

Same as No. 53, but with No. 2 Cut-off Switch added. **Shipping weight, 44 lbs.**

No. 2 Cut-off Switch

For use with No. 47, No. 51 and No. 53 Boiler Water Feeders.

The proved, wiping-contact, quick make and break Low Water Cut-off Switch for quick and easy application to McDonnell Boiler Water Feeders. Has high voltage low water cut-off terminals and low voltage low water alarm terminals. Can be supplied mounted on feeders as listed above or purchased separately and added in two minutes. Electrical Rating: A.C. ¾ H.P.—110-220 V.; D.C. 10 Amp.—125 V. **Shipping weight, 2 lbs.**

McDONNELL

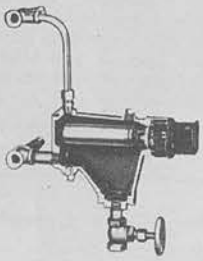
LOW WATER CUT-OFFS AND COMBINATIONS

No. 3

No. 3 Low Water Cut-off Switch

Interchangeable with No. 2 Switch, listed above.

Similar to No. 2 but has high voltage contacts for *both* low water cut-off and low water alarm. **Shipping weight, 2 lbs.**



No. 67

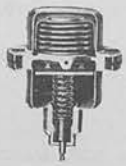
No. 67 Low Water Cut-off

For boilers of any size. Maximum Steam pressure, 25 lbs.

Many years of "Doing One Thing Well" have produced this outstanding achievement in low water cut-off construction. Advanced features are: Deep sediment chamber with flanged opening; packless, non-binding construction; advanced *double* "Rollmag" switch; adjustable terminal box so that BX can be brought in from top, bottom or either side, assuring neat wiring. Quick-Hook-Up and ½" blow-off valve are standard equipment.

The double switch is included at no extra cost. One switch closes on a small drop (without stopping burner) to operate low water alarm or to operate the No. 101 Electric Water Valve described below. The other operates (on a greater drop) as a low water cut-off. Body has tapping for No. 13 Pressure Limit Control described below.

Underwriter's approved. Ratings for both switches: A.C. ¾ H.P., 110-230 V.; D.C. ¼ H.P., 115-230 V. **Shipping weight, 10 lbs.**



No. 13

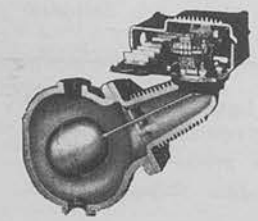
No. 13 Pressure Limit Control

For quick and easy mounting on the McDonnell No. 67 and certain "built-in" type cut-offs*. Stops burner at 3 lbs., starts at 1 lb. (Factory setting.) Other ranges available from 2 to 12 lbs.

The simple solution to the pressure limit problem. Simply screw the No. 13 into the tapping provided in the No. 67, or into "built-in" cut-offs having a tapping*. Its plunger will force down the float when excess pressure develops, stopping burner. No adjustment necessary—no wiring whatever—positive operation.

IMPORTANT: ***Do not use the No. 13 when you use the No. 101.***

Shipping weight, 1 lb.



No. 150

No. 150 High Pressure Pump Control, Cut-off and Alarm

For boilers of any size operating at pressures up to 150 lbs.

The No. 150 is not merely a high pressure version of a low pressure device. It is designed and built, down to the last detail, to stand the gaff of high pressure and temperature. No stuffing box to bind or leak—packless construction, using a double strength sylphon bellows—all operating parts are away from heat. Equipped with two switches. One closes on small float drop to operate electric boiler feed pump or the McDonnell No. 101 Electric Water Valve. The other operates on greater drop to stop burner and sound low water alarm. *All operating levels are adjustable.*

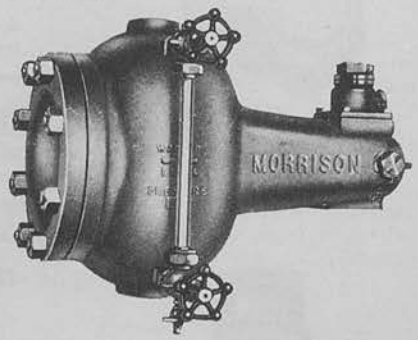
Body tappings, 1" top and bottom. Underwriter's approved. Electrical ratings: Cut-off and Pump Control: A.C. 1 H.P. 110-220-V.; D.C. ¼ H.P. 115-230-V. Alarm: A.C. or D.C. 1 Amp.-110-V. **Shipping weight, 33 lbs.**

LIQUID LEVEL CONTROLS

"TYPE C"—FIG. 8120—is the Single Acting control unit for maintaining the liquid level in a boiler or other apparatus. It is fitted with a seamless copper float and bronze interior and exterior trimmings. In ordering, the working pressure should be stated. as well as the purpose for which it is to be used.

The pressure of water supply should be at least 5 lbs. per square inch higher than the maximum pressure carried in the boiler or tank.

MORRISON CONTROLS are manufactured in a full range of types for every purpose. Write for prices and particulars.



"TYPE C"—FIG. 8120 — Iron Body, Bronze Mounted, 125 lbs. maximum W.S.P., Canadian Interprovincial Standard 01044.

REDUCING VALVES

Internal Pilot Operated Type

Steam Service

Fig. No. 11 Bronze Body

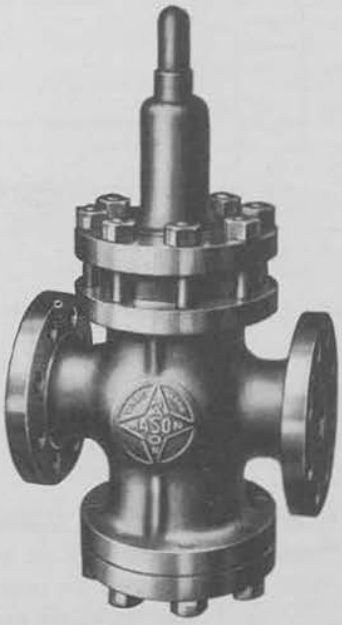


Fig. No. 11 Steel Body

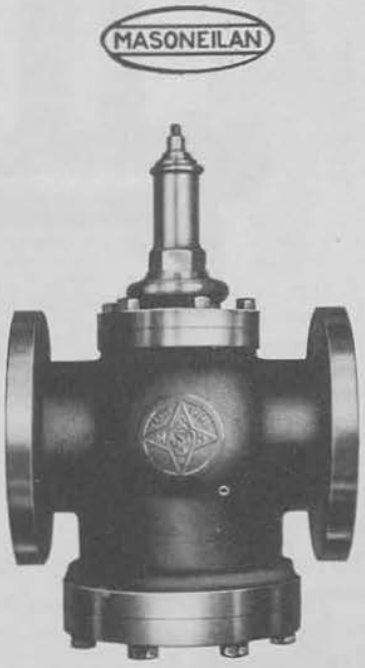


Fig. No. 11 Iron Body

Uses:

For controlling saturated or superheated steam in Industrial and Power Plant operations.

Pressure Ranges:

When ordering, the *Reduced Pressure* must be specified so that the proper spring may be furnished.

The diaphragm *Spring* is the only spring in the reducing valve that is required to be changed for different reduced pressures; the others are not affected.

The power to operate this regulator is derived from the high pressure or inlet side. For this reason, it is necessary that the initial pressure be at least 20 pounds above the required reduced pressure. When reduced pressures under 5 pounds are required, these valves can be furnished with a large diaphragm

Construction:

Sizes ½"—2": High pressure steam bronze bodies, union ends, stainless steel auxiliary valve, main valve and seats, bronze piston with special iron rings.

Sizes 2½"—4": Iron bodies, extra heavy flanges, faced and drilled, stainless steel auxiliary valve, main valve and seats, bronze piston with special iron rings and bronze liner.

Sizes ½"—4": Cast steel bodies, series 30, 40 or 60 flanges, faced and drilled to the accepted standard for pressures specified, heat-treated working parts from high carbon stainless steel, machined and ground to fixed tolerances according to pressure and temperatures specified.

SIZE Inches	BRONZE BODY Stainless Steel Trim Union Connections		STEEL BODY Stainless Steel Trim Series 30, 40 or 60 Flanges		SIZE Inches	IRON BODY Stainless Steel Trim Ex. Hvy. Flanged		STEEL BODY Stainless Steel Trim Series 30, 40 or 60 Flanges
	List Price	Shipping Weight	List Price	Shipping Weight		List Price	Shipping Weight	
½	$32.00	8 lbs.	$102.00	65 lbs.	2½	$110.00	135 lbs.	Prices on 2½"–4" on application
¾	32.00	8 "	104.00	65 "	3	140.00	165 "	
1	44.00	14 "	106.00	65 "	4	220.00	294 "	
1¼	55.00	19 "	112.00	90 "				
1½	75.00	30 "	120.00	110 "				
2	96.00	50 "	143.00	132 "				

REDUCING VALVES

MASONEILAN

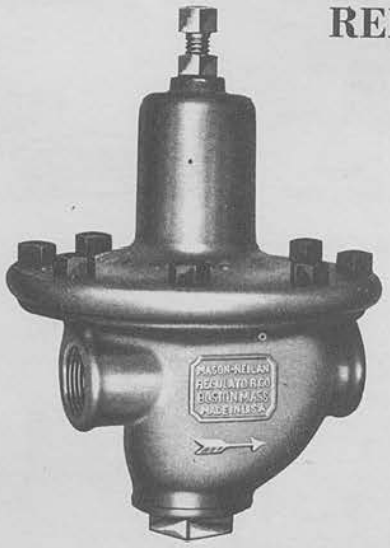


Fig. No. 227 Exterior

Water Service

Uses:

To regulate water pressure where the city or other pressure is too high for economical and convenient use.

Advantages:

Will maintain even pressures of water between 10 and 60 pounds from service pressures up to 150 pounds. Will shut off tight and can be used for dead-end service.

When used as a household water pressure regulator it will stop objectionable "singing" in bathroom fixtures and splashing from faucets without cutting down the flow of water. Also reduces strain on plumbing, and eliminates excess leakage from ball cocks, faucets and other fixtures.

Construction:

All metal parts are bronze except steel spring and cap screws which are specially treated to prevent rusting. Renewable composition disc.

Reduced Pressure Range:

10 to 60 pounds.

BRONZE BODY

Maximum Working Pressure 150 lbs.

SIZE Inches	List Price	Shipping Weight
¼	$ 9.00	4 lbs.
½	13.00	6 "
¾	14.00	7 "
1	16.00	8 "
1¼	32.00	20 "
1½	40.00	22 "
2	48.00	30 "

For installations requiring valves of 2½" pipe size and larger, prices upon application

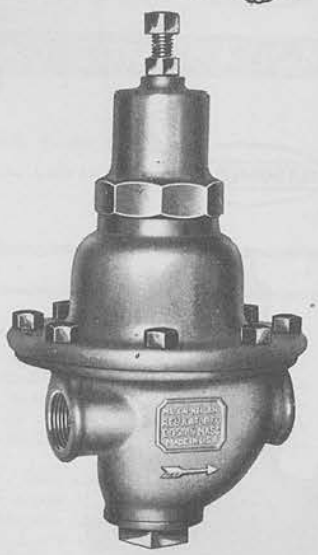


Fig. No. 414 Exterior

Air Service

Uses:

An air reducing valve for industrial service where apparatus or machines using or operated by compressed air require a pressure lower than carried on the main air system or pressure tank.

Advantages:

This air reducing valve is small, compact, light weight and completely enclosed. The rubber diaphragm and valve disc are specially treated to resist damage by oil, often entrained in compressed air.

Spring and valve disc are readily accessible for change or replacement by removable plugs on top of spring case and bottom of valve body.

Construction:

All metal parts are high-grade steam bronze except rust-proof steel spring and cap screws. Special oil-resistant rubber diaphragm and valve disc. For the lower reduced pressures a spring is used under the disc holder to balance the effect of the high pressure and insure close control. Renewable composition disc.

Reduced Pressure Ranges:

10–60 lbs.

BRONZE BODY

Maximum Working Pressure 150 lbs.

SIZE Inches	List Price	Shipping Weight
½	$15.00	9 lbs.
¾	16.00	11 "
1	18.00	11 "
1¼	42.00	26 "
1½	50.00	28 "
2	58.00	40 "

For installations requiring valves of 2½" pipe size and larger, prices upon application.

PRESSURE REDUCING VALVES

Fig. 5150

Maximum Working Pressure 300 lbs.

STANDARD PATTERN—BRONZE

Size, inches	½	¾	1	1¼	1½	2
Figs. 5150 ..... Each	40.00	40.00	48.75	62.50	77.50	97.50
Centre to Top ..... Inches	6	6	8	9	9	10
Centre to Bottom ..... Inches	4¾	4¾	5	6	7½	9⅛
Length over Unions ..... Inches	5¾	5¾	7	8	9	11¼

Size, inches	½	¾	1	1¼	1½	2
Fig. 5151 ..... Each	40.00	40.00	48.75	62.50	77.50	97.50
Diameter of Flanges ..... Inches	3¾	4⅝	4⅞	5¼	6⅛	6½

Always specify initial or Boiler pressure and required reduced pressure.

Fig. 5151
Approved under Canadian Interprovincial Regulations

IRON BODY—BRONZE MOUNTED—STANDARD PATTERN

For Reduced Pressures Above 10 Lbs. Maximum Working Pressure 250 Lbs

Approved under Canadian Interprovincial Regulations

BRONZE

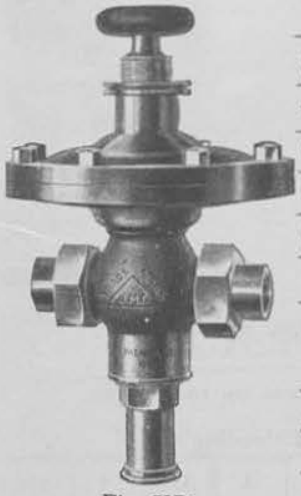


Fig. 5170

Size ..... In	2½	3	3½	4	5	6
Fig. 5160 ..... Ea	120.00	152.50	180.00	210.00	285.00	380.00
Centre to Top ..... In	12	14	14	15	15¾	16½
Centre to Bottom ..... In	9½	10½	11½	13½	13½	16
Face to Face of Flanges In	8¼	10¼	12	14	15½	17⅛
Diameter of Flanges ... In	7½	8¼	9	10	11	12½

Fig. 5160

WITH LARGE DIAPHRAGM

For Reduced Pressures Under 10 Lbs.
Maximum Working Pressure 250 Lbs.

Size ..... Inches	½	¾	1	1¼	1½	2
Figs. 5170 .Each	58.75	58.75	68.75	82.00	97.50	117.50
Length over Unions Inches	5¾	5¾	7	8	9	9⅛

WATER PRESSURE REDUCING VALVE

BRONZE BODY

Morrison Water Pressure Reducing or Regulating Valves are in use by a large number of customers to regulate the pressure of water. In cities and towns where fire pressure pumps are used it is necessary to have a pressure reducing valve which will prevent the pressure from causing damage.

For initial pressures up to 100 Lbs.

For reduced pressures 0– 40 Lbs.

Fig. 5280

Reducing Valves are guaranteed to give continuous satisfactory service. They will hold the reduced pressure for which they are set, regardless of any variation in initial pressure. Every valve thoroughly tested before shipping.

Always use a strainer on the line in front of valve. Prevents chips or sediment or scale getting into valve.

Size ..... Inches	½	¾	1	1¼	1½	2
Fig. 5280 ..... Each	16.65	17.65	26.70	78.55	99.70	143.65

"BEAVER" SAFETY VALVES

Fig. 4380

"Beaver" Safety Valves are Government approved under the Canadian Interprovincial Boiler Inspection Regulations for use in Ontario.

BRONZE BODY — SINGLE SEAT

For Saturated Steam Working Pressures up to 200 Lbs.

Always state Pressure at which Valves are to be Set

Size.....Inches	½	¾	1	1¼	1½	2
Fig. 4380.....Each	8.00	10.00	12.00	15.00	20.00	30.00

BRONZE BODY SAFETY VALVES SINGLE SEAT

For Saturated Steam Working Pressures up to 200 Lbs.

Always state Pressure at which Valve is to be Set

Morrison Safety Valves are designed for use on stationary and portable boilers, tractors and similar equipment. Having side outlet permits piping of discharge to the desired point. Morrison Safety Valves have single seat which makes them more positive in action and preferable to other designs. Can be fitted with lock-up attachment at small extra charge.

Fig. 4390

Size.....Inches	½	¾	1	1¼	1½	2
Fig. 4390.....Each	8.00	10.00	12.00	15.00	20.00	30.00

Fig. 4430

SAFETY VALVES

IRON BODY — BRONZE MOUNTED

Approved under Canadian Interprovincial Boiler Code for use in all Provinces

HI-LIFT SERIES 250

For Working Steam Pressures up to 250 Lbs.

Total Temperature Not Exceeding 450° F.

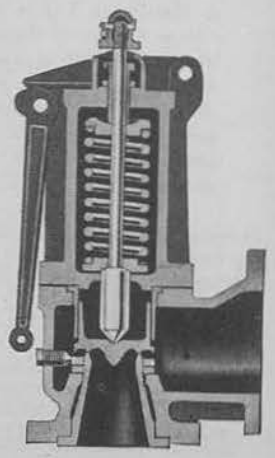
Size.....Inches	2	2½	3	3½	4	4½
Fig. 4430.....Each	35.00	55.00	75.00	90.00	110.00	135.00
Diameter Inlet Flange, ins.....	6½	7½	8¼	9	10	10½
Diameter Outlet Flanges, ins.....	7	7½	8½	9	10	10

HI-LIFT IRON BODY BRONZE TRIMMED O S AND Y SAFETY VALVES, FLANGED INLET AND OUTLET

Maximum Working Steam Pressure 250 lbs. and Total Temperature not exceeding 450° F.

Size—Inches	2"	2½"	3"	3½"	4"	4½"
List Each	65.00	82.00	97.50	117.00	127.50	142.00

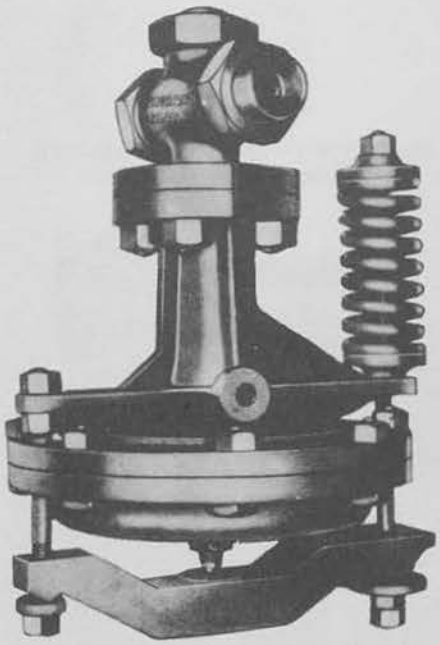
The above safety valves can be supplied cast steel body, Monel or Stainless Steel Trim. Write for particulars.



"Beaver 36"

For Steam or Air

Pressure Reducing Valves



The "Beaver 36" Pressure Reducing Valve or Pressure Regulator has been designed to meet the demand for a valve to be absolutely tight on "dead end" service and maintain a constant reduced pressure, regardless of fluctuations of boiler or initial pressure.

The large low pressure control chamber and diaphragm, and the long sensitive compression spring make this valve simple and easy to adjust within very fine limits, and reliable in operation.

The seat and disc is of "MORBRITE" nickel alloy, and the valve stem of stainless steel.

Diaphragms are of fabric inserted flexible rubber which, if properly insulated with water on both sides when installed, should last for years. When it becomes necessary to replace the diaphragm, a slight leak will show for several days. A convenient time may be chosen for its renewal.

LIST PRICES

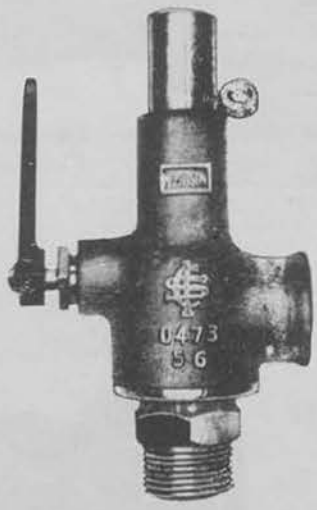
STRAIGHTWAY TYPE

	BRONZE BODY—SCREWED						IRON BODY—FLANGED					
	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"	6"
Standard diaphragm pattern	$55.00	56.00	58.00	65.00	69.00	73.50	$75.50	88.50	108.75	116.50	130.00	170.00
Large diaphragm pattern	62.00	63.00	65.00	72.50	79.00	84.00	90.00	102.00	126.00	133.00	160.00	200.00

DIFFERENTIAL TYPE

	Bronze Body —Screwed	IRON BODY—FLANGED							
	1x2"	1¼x2½"	1½x3"	2x4"	2½x5"	3x6"	3½x7"	4x8"	5x10"	6x12"
Standard diaphragm pattern	$65.75	$71.00	76.00	89.25	95.00	115.50	130.00	145.00	175.00	220.00
Large diaphragm pattern	75.50	81.00	91.00	100.00	123.00	150.00	165.00	175.00	200.00	245.00

RELIEF VALVES



Government Approved Water Relief Valves with Easing Gear Suitable for Water Pressure up to 200 lbs.

½"	¾"	1"	1¼"	1½"	2"
$9.50 Ea.	$10.50	$13.50	$14.50	$19.50	$27.50

HOT WATER THERMOMETERS

WHITE ENAMEL CASE—BLACK FIGURES

½-IN. PIPE THREAD

STRAIGHT STEM

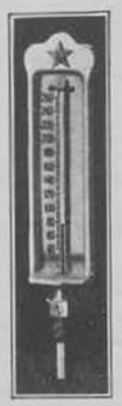


Fig. 5070

These Thermometers are for use principally on hot water heating systems, hot water storage tanks, etc. They have ½-inch iron pipe male thread and are fitted with a mercury or spirit well which is attached to the case by means of a set screw. Should upper part of thermometer be broken, the case can be detached from the stem by loosening the set screw. There is no danger of hot water escaping as lower part of thermometer acts as a plug, sealing the opening through which it is attached to boiler.

ANGLE STEM

Fig. 5071

Fig. 5070—Straight Stem	Each	1.42
Fig. 5071—Angle Stem	Each	1.69

EXPANSION JOINTS

BRONZE
125 Lbs. Working Pressure

Fig. 7070
Screwed

STANDARD TRAVERSE

Size.....Inches	½	¾	1	1¼	1½	2	2½	3
Fig. 7070.....Each	1.50	2.20	2.75	4.00	5.00	8.00	17.50	24.00
Traverse, inches.....	2	2¼	2¼	2¼	2¼	2½	2½	2¾

SPECIAL TRAVERSE

Size.....Inches	½	¾	1	1¼	1½	2	2½
4-inch Traverse.....Each	3.80	4.00	4.90	6.30	7.40	9.10	.....
6-inch Traverse.....Each	.....	8.25	9.00	10.00	11.50	13.50	24.00
8-inch Traverse.....Each	.....	9.00	10.00	11.25	13.00	15.50	27.00
10-inch Traverse.....Each	.....	9.75	11.00	12.50	14.50	17.50	30.00
12-inch Traverse.....Each	.....	10.50	12.00	13.75	16.00	19.50	33.00

IRON BODY—BRONZE MOUNTED
125 Lbs. Working Pressure

Fig. 7071
Screwed

STANDARD TRAVERSE

Size.....Inches	2	2½	3	3½	4	4½	5
Fig. 7071.....Each	7.00	8.00	10.00	14.00	18.00	30.00	38.00
Traverse, inches.....	2½	2½	2¾	3	3¼	3½	4

Size.....Inches	6	7	8	9	10	12
Fig. 7071.....Each	45.00	70.00	100.00	110.00	160.00	225.00
Traverse, inches.....	5	6	7	7	7	8

SPECIAL TRAVERSE

Size.....Inches.	2	2½	3	3½	4
6-inch Traverse.....Each	11.00	13.00	17.50	25.00	30.00
10-inch Traverse.....Each	16.00	19.00	25.00	35.00	42.00
12-inch Traverse.....Each	18.50	22.00	29.00	40.00	48.00

Size.....Inches	4½	5	6	7	8
6-inch Traverse.....Each	40.00	45.00	55.00	.....	.....
10-inch Traverse.....Each	52.00	62.00	80.00	100.00	140.00
12-inch Traverse.....Each	60.00	70.00	92.50	115.00	160.00

STANDARD TRAVERSE

Size.....Inches	2	2½	3	3½	4	5
Fig. 7080.....Each	15.00	16.00	18.50	25.00	30.00	48.00
Traverse, inches.....	2½	2½	2¾	3	3¼	4

Size.....Inches	6	7	8	9	12
Fig. 7080.....Each	55.00	80.00	110.00	120.00	250.00
Traverse, inches.....	5	6	7	7	8

125 Lbs. Working Pressure

IRON BODY—BRONZE MOUNTED

Fig. 7080
Flanged

SPECIAL TRAVERSE

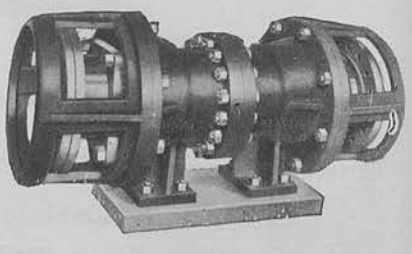
Size.....Inches	2	2½	3	3½	4
6-inch Traverse.....Each	18.00	20.00	25.00	35.00	40.00
10-inch Traverse.....Each	23.00	26.00	32.50	45.00	52.00
12-inch Traverse.....Each	25.50	29.00	36.50	50.00	58.00
Diameter of Flanges, inches.....	6	7	7½	8½	9

Size.....Inches	5	6	8	10
6-inch Traverse.....Each	55.00	65.00		
10-inch Traverse.....Each	72.00	90.00	150.00	225.00
12-inch Traverse.....Each	80.00	102.00	170.00	255.00
Diameter of Flanges, inches.....	10	11	13½	16

"Beaver" Cast Iron Body Brass Sleeve Externally Guided with Limit Stop Expansion Joints Flanged with Anchor Base

250 lbs. Working Steam Pressure

Size	Single 6-In. Traverse List Each	Double 6-In. Traverse Each Sleeve List Each
2½	$ 80.00	$160.00
3	90.00	180.00
3½	110.00	220.00
4	125.00	250.00
5	145.00	290.00
6	160.00	320.00



PRESSURE GAUGES

For accurately indicating pressure of Steam, Water, Air, Oil or Brine up to but not exceeding 1000 lbs. Gauge Graduation

Approved under the Interprovincial Boiler Inspection Regulations

SINGLE SPRING

Fig. 4760

Diameter of Dial...Inches	2½	3½	4½	5	6	6¾	8½	10	12	18
Jap. Iron Case, Br.Ring..ea	6.00	7.00	8.00	8.00	13.00	16.00	22.00	32.00	50.00	144.00
Jap. Iron Case, N.P.Rg..ea	6.15	7.18	8.20	8.20	13.50	16.60	22.75	33.00	51.50	148.50
Brass Case, Fin.....Each	8.00	9.00	10.00	11.00	16.00	20.00	30.00	40.00	75.00	170.00
Brass Case, N.P.....Each	8.60	9.75	11.00	12.00	17.50	22.00	32.50	43.00	79.00	179.00

DOUBLE SPRING

Fig. 4781

Diameter of Dial.....Inches	4½	5	6	6¾	8½	10	12	18
Jap. Iron Case, Brass Ring Ea.	11.00	11.00	15.00	18.00	25.00	37.00	55.00	144.00
Jap. Iron Case, N.P. Ring.Ea..	11.20	11.20	15.50	18.60	25.75	38.00	56.50	148.50
Brass Case and Ring, Fin...Ea	13.00	13.00	18.00	22.00	34.00	45.80	80.00	170.00
Brass Case and Ring, N.P...Ea	14.00	14.00	19.50	24.00	36.50	48.00	84.00	179.00

VACUUM GAUGES

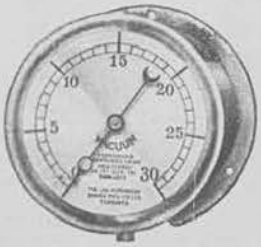


Fig. 4790

Standard Graduation is 0-30 inches

Diameter of Dial.....Inches	2½	4½	5	6	6¾	8½	10	12
Jap. Iron Case, Brass Ring...Ea	6.00	8.00	8.00	13.00	16.00	22.00	32.00	50.00
Jap. Iron Case, N.P. Ring....Ea	6.15	8.20	8.20	13.50	16.60	22.75	33.00	51.50
Brass Case and Ring, Fin....Ea	8.00	10.00	11.00	16.00	20.00	30.00	40.00	75.00
Brass Case and Ring, N.P....Ea	8.60	11.00	12.00	17.50	22.00	32.50	43.00	79.00

COMPOUND PRESSURE AND VACUUM GAUGES

Indicates pressure and vacuum on one dial. Every guage hand calibrated against a master guage.

*Graduated 0-30" vacuum or 0-15" vacuum on vacuum side and 0-15 lbs. to 0-300 lbs. on pressure side.

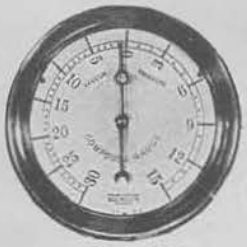


Fig. 4791

Diameter of Dial.....Inches	4½	5	6	6¾	8½	10	12
Jap. Iron Case, Brass Ring, Fin...Each	12.00	14.00	16.00	20.00	30.00	40.00	60.00
Jap. Iron Case, Brass Ring, N.P..Each	12.20	14.25	16.50	20.60	30.75	41.00	61.50
Brass Case and Ring, Finished....Each	14.00	16.00	20.00	25.00	40.00	50.00	80.00
Brass Case and Ring, N.P.....Each	15.00	17.25	21.50	27.00	42.50	53.00	84.00

MORRISON ALTITUDE GAUGES

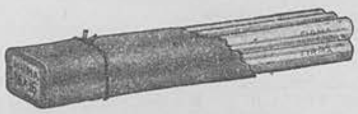
Fig. 4810

Indicates the height of water in tanks, reservoirs, stand pipes, heating systems, etc.

Diameter of Dial.....Inches	5	6	6¾	8½	10	12
Japanned Iron Case, Brass Ring.....Each	12.00	16.00	20.00	30.00	40.00	60.00
Japanned Iron Case, Brass Ring, N.P...Each	12.20	16.50	20.60	30.75	41.00	61.50
Brass Case and Ring, Finished.....Each	14.00	20.00	25.00	40.00	50.00	80.00
Brass Case and Ring, N.P.....Each	15.00	21.50	27.00	42.50	53.00	84.00

Firma Imported Gage Glasses

Best for High Pressure

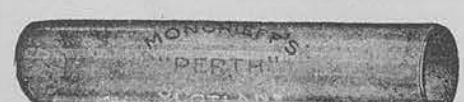


Constructed with a double tube, annealed at the ends, and will not break when subjected to drafts or sudden changes of temperature. The resistance to sudden changes of temperature is so great that a glass may be heated to 450° F. and will not break when dropped vertically into cold water.

Length Inches	Price, per Dozen — External Diameter, Inches: ½ and ⅝	¾	⅞	1
10	5.00	7.00	8.00	10.40
11	5.40	7.40	8.60	11.20
12	6.00	8.40	10.00	12.40
13	6.40	9.00	10.60	13.60
14	6.60	9.60	11.00	14.80
15	7.00	10.00	11.80	15.60
16	7.80	11.40	12.60	17.00
17	8.00	11.80	13.40	18.00
18	8.60	12.20	14.20	19.00
19	9.00	13.00	15.00	20.00
20	9.00	14.00	16.40	21.40
22	11.00	14.80	17.20	22.40
24	12.00	16.80	20.00	24.80
30	14.00	20.00	23.40	31.20
36	17.20	24.40	28.40	38.00
48	23.40	34.20	37.80	51.00
60	28.00	40.00	47.20	62.40
72	34.40	48.80	56.80	76.00

Special prices on lengths over 72 inches. ⅞ inch procurable on special order only.

Scotch Gauge Glasses



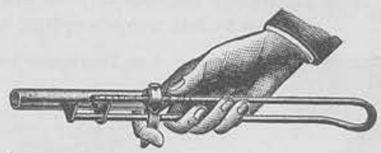
Moncrieff Perth

For Steam Pressure Up to 150 Pounds

Price per Dozen

Length, Inches	External Diameter ½	⅝	¾
10	$3.00	$3.00	$3.60
11	3.24	3.24	3.96
12	3.60	3.60	4.32
13	3.84	3.84	4.80
14	4.20	4.20	5.16
15	4 44	4.44	5.52
16	4 80	4.80	5.88
17	5.04	5.04	6.24
18	5.40	5.40	6.60
19	5.64	5.64	7.08
20	6.00	6.00	7.44
22	6 60	6.60	8.16
24	7.20	7.20	8.88

Gauge Glass Cutters



Improved lever attachment, large rest, high grade wheel cutter. Operates quickly, easily and accurately.

Price..each **$2.00**

Rubber Gauge Glass Washers

Square

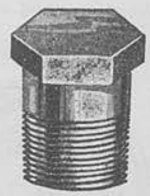
Size In.	Price, per Doz. Square	Round
½	$.36	$.48
⅝	.36	.54
¾	.36	.60

Round

Fusible Plugs

Regular
No. 99—Outside
No. 99A—Inside

Extra Long No. 99B For Outside Insertion



Extra Long No. 99C For Inside Insertion

Size Inches	Price, Each: No. 99 / No. 99A	No. 99B / No. 99C
⅜	.50	1.10
½	.60	1.20
¾	.75	1.50
1	1.00	2.00
1¼	1.50	3.00
1½	2.00	4.00
2	3.00	6.00

Marine Type Fusible Plugs

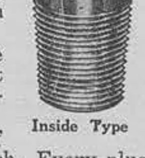
Outside Type

Conform to rules and regulations of Steamboat Inspection Service U. S. Department of Commerce.

Made with high grade bronze castings filled with pure tin.

The I. P. threads are extra long, and will fit holes that have been tapped or worn oversize.

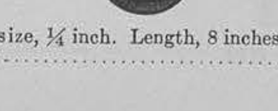
Smallest diameter of core on all sizes is ⅜-inch. Every plug stamped with heat number.



Inside Type

Size, Inches	⅜	½	¾	1
No. **991**, Outside Type....Each	**1.10**	**1.20**	**1.50**	**2.00**
No. **992**, Inside Type......Each	**1.10**	**1.20**	**1.50**	**2.00**

Syphons for Steam Gauges



Connection size, ¼ inch. Length, 8 inches.
Price, Iron....................................each **$.50**

Daniel's P. P. P. Rod Packing

Regular P. P. P.

The Only and Original Wedge Rod Packing

Wedges slide freely on each other and automatically increase or decrease pressure on the rod.

Special P. P. P.

Put up in boxes of 15 feet or more. Wrapped in muslin. Regular and Special Styles made in sizes 3/16 to 1¼ inches by 1/16 inch; 1¼ to 3 inches by ⅛ inch. Marine Style made in sizes ⅛ inch and up. All three styles made in any length.

Regular and Regular Ammonia P. P. P.

For steam pressures of 100 lbs. or less; ordinary water pressures, cold or warm; low ammonia pressures, valve stems, etc. Specify when for ammonia service.

				Tandem	
No.	182	186	184		
Form	Coil	Spiral	Ring	Coil	Ring

Special and Special Ammonia P. P. P.

For steam pressures over 100 lbs. (when not superheated); high ammonia pressures; high hydraulics, very hot water; air pumps, valve stems, etc. Specify when for ammonia service.

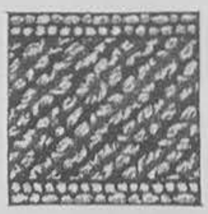
				Tandem	
No.	183	187	185		
Form	Coil	Spiral	Ring	Coil	Ring

Marine P. P. P.

For all pressures when superheated or dry steam is used.

No.	678	688	698
Form	Coil	Spiral	Ring

SPANDO Packing


Cross Section

Improved Spando retains its rectangular shape until it is worn out—no unprotected corner layers to break off—no gummy mess clogging up the stuffing box—no rolling with the action of the piston rod.

Spando is regularly packed in coils of approximately 15 feet each, in the smaller sizes two coils are enclosed in pasteboard carton—larger sizes one coil. This is explained in detailed table below, which also gives approximate net weight per box.

Size Inch	No. Coils per Box	Weight per Box Lbs.	Weight per Box Ozs.	Size Inch	No. Coils per Box	Weight per Box Lbs.	Weight per Box Ozs.
3/16	2	0	14	13/16	1	5	8
1/4	2	1	7	7/8	1	6	8
5/16	2	1	14	15/16	1	7	4
3/8	2	2	8	1	1	8	3
7/16	2	3	10	1 1/16	1	9	3
1/2	2	4	7	1 1/8	1	10	2
9/16	1	2	12	1 1/4	1	12	8
5/8	1	3	5	1 3/8	1	14	8
11/16	1	3	14	1 1/2	1	17	0
3/4	1	4	12	..	.	..	..

Prices on application.

PACKING
is our
SPECIALTY

White Square Hydraulic Pump Packing

Made from fine cotton sheeting laminated, and treated with high grade white friction rubber between the plies of sheeting. Same material rock hard cure if desired. Recommended for use on inside packed plungers handling hot and cold water.

Furnished in 16ths from 3/16 to 1¼ in. inclusive.

Put up in flat coil boxes of approximately 10 lbs. each.

Price, Hydraulic Pump Packing........per Lb. **$1.50**

Sectional Ring Packing

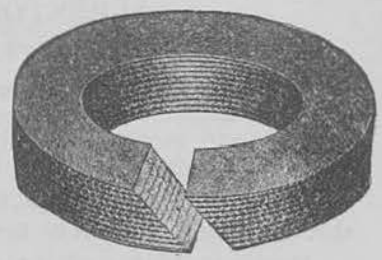
For packing rods against medium pressure steam, hot and cold water and ammonia. Made from the high grade stock.

Sectional Rings are furnished only in sizes where the rim is wide enough to make the sectional cut at the proper angle to insure effectual working of the packing. Not recommended in packing space sizes under ⅜ inches.

Sectional Ring Packing.............per Pound **1.50**

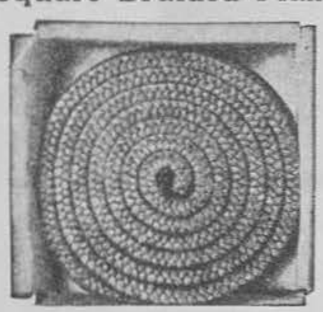
Standard Ring Packing

For packing rods, against medium pressure steam and hot or cold water. This is a well known type and one that can be recommended for general purposes.



Per Pound ....

Wing's Square Braided Flax Packing



Made from fine grade flax, thoroughly lubricated. Recommended for water end of pumps and all hydraulic work.

Price per pound......................... **$1.00**

Atlas Style No. 200

"LOMOTO" ASBESTOS VALVE STEM PACKING
(Twisted)

ATLAS STYLE No. 200

For packing all styles of Globe, Angle and Stop Valves, small rods on House Pumps, Water Motors, etc.

This is a flexible twist packing composed of strong strands of pure Asbestos, each strand saturated separately with our special graphite compound.

It is always soft and pliable. Does not get hard or char.

Put up on ¼ and 1 lb. spools neatly boxed.

Sizes 1/16," 1/8", 3/16", 1/4", 5/16", 3/8", 1/2".

"MILBESTO" ASBESTOS VALVE STEM PACKING
(Braided)

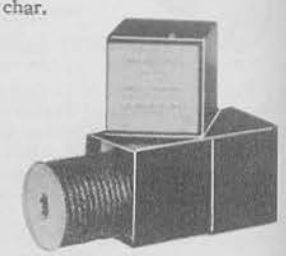
ATLAS STLYE No. 178

For packing Small Valves, Cocks, etc.—Medium Pressure

Made from fine asbestos yarn, thoroughly lubricated and graphited—braided throughout—for all purposes; steam, air, oil.

Put up on 1 lb. spools neatly boxed.

Sizes 1/8", 3/16", 1/4", 5/16", 3/8", 1/2".



Atlas Style No. 178

Atlas Style No. 445

ATLAS WOVEN ASBESTOS METALLIC SHEET PACKING

ATLAS STYLE No. 445

This packing is woven from asbestos yarns of pure long fibre, with strands of fine brass wire twisted through each separate yarn, and coated with a white heat resisting compound.

Atlas Style No. 445 is very flexible and durable. It adapts itself to all uneven surfaces, and makes a highly efficient packing for high pressure steam.

Supplied 40" wide.

Thicknesses 1/32", 1/16", 3/32", 1/8", 3/16" and 1/4".

"LOMOTO" HIGH PRESSURE COMPRESSED ASBESTOS SHEET PACKING

(Black Graphited throughout)

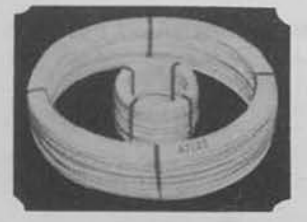
"LOMOTO" is a high grade compressed asbestos fibre sheet. Is specially recommended for use against super-heated steam, air, acid, gas, oil, and around gasoline engines. Its wide range of adaptability makes it suitable for general use around any plant.

Gaskets made from "LOMOTO" sheet will not stick to the flange, therefore the joints can be broken and re-made repeatedly.

Made in sheets 48" x 48", 60" x 60", 60" x 240".

Thicknesses 1/32", 1/16", 3/32" and 1/8".

"Lomoto" Sheet Packing



Atlas Style No. 100

ATLAS HIGH PRESSURE ASBESTOS METALLIC GASKETS

ATLAS STYLE No. 100

Made for any size manhole and handhole cover.

Atlas Style No. 100 Asbestos Gaskets are made from the very finest materials throughout and are unexcelled for high pressure service. These gaskets are flexible and strong, readily conform to the flange, and withstand heat and moisture without injury.

We can furnish Atlas Style No. 100 Gaskets in any shape, size, flange or thickness.

Re : GASKETS

We can furnish gaskets cut to special shapes required. When other than round gaskets are desired, a sample, drawing or template should be furnished, and thickness specified. Wherever application is practicable, round gaskets are recommended, they are less expensive, both for material and labor.

We are in a position to supply moulded asbestos valve ring packing, or any type of packing or gaskets constructed of asbestos, asbestos and rubber, duck, cotton, hemp, flax, jute, or metallic compositions.

Packings for special equipment or for new and unusual conditions are often desirable or necessary. When this occurs and details are furnished, we will be pleased to submit prices and full information.

White and Colored Waste

White Cotton Waste

Made of soft absorbent threads, uniformly graded throughout the bales. Furnished in three grades suitable for rubbing and polishing and wiping highly polished machinery parts and for general shop use. In bales from 50 to 600 pounds.

Wiping Rags

These rags are thoroughly washed and sterilized.

Packed in 25, 50 and 100-pound bales.

All buttons and stiff pieces have been taken off.

Can be furnished in either white or colored.

Furnished in any grade at lowest current market prices.

Twisted Jute Packing

Made from selected materials carefully prepared and properly treated to obtain the most satisfactory results.

Wound in 50-lb. coils.

Furnished in three types as follows:

Tarred

Commonly called "Rope Oakum" and made in regular 8-strand construction in rope form. Used generally for soil and waste water pipes and other sewer work.

Tarred Twisted Jute Packing.....per Lb. **.16**

Untarred

Treated with oil but contains no tar. Made in rope form, same as Tarred. Specified for sewer and water mains of terra cotta or cast iron pipe.

Untarred Twisted Jute Packing.....per Lb. **.16**

Dry Unoiled

The same construction as the Tarred or Untarred but, made without tar or oil. Used with lead substitutes; also, preferred for use with plastic compounds for terra cotta and concrete sewer pipe joints.

Dry Unoiled Twisted Jute Packing.....per Lb. **.16**

Plumbers' Spun Oakum

Made from carefully prepared materials and treated with high-quality tar. It is spun in a smooth, even sliver and packed in regular 50-lb. slatted bales.

Used generally for soil and waste water pipes.

Plumbers' Spun Oakum..... per bale **6.00**

Gaskets

For Standard and Extra Heavy Flanges, Flanged Valves and Flanged Fittings

Ring Gasket

Full Faced Gasket

TABLE OF INSIDE AND OUTSIDE DIAMETERS

Nominal Pipe Size Inches	125 Pounds W. S. P. Raised Face		250 Pounds W. S. P. Raised Face	
	Ring Inches	Full Faced Inches	Ring Inches	Full Faced Inches
1	1 x 2 5/8	1 x 4 1/4	1 x 2 7/8	1 x 4 7/8
1 1/4	1 1/4 x 3	1 1/4 x 4 5/8	1 1/4 x 3 1/4	1 1/4 x 5 1/4
1 1/2	1 1/2 x 3 3/8	1 1/2 x 5	1 1/2 x 3 3/4	1 1/2 x 6 1/8
2	2 x 4 1/8	2 x 6	2 x 4 3/8	2 x 6 1/2
2 1/2	2 1/2 x 4 7/8	2 1/2 x 7	2 1/2 x 5 1/8	2 1/2 x 7 1/2
3	3 x 5 3/8	3 x 7 1/2	3 x 5 7/8	3 x 8 1/4
3 1/2	3 1/2 x 6 3/8	3 1/2 x 8 1/2	3 1/2 x 6 1/2	3 1/2 x 9
4	4 x 6 7/8	4 x 9	4 x 7 1/8	4 x 10
5	5 x 7 3/4	5 x 10	5 x 8 1/2	5 x 11
6	6 x 8 3/4	6 x 11	6 x 9 7/8	6 x 12 1/2
8	8 x 11	8 x 13 1/2	8 x 12 1/8	8 x 15
10	10 x 13 3/8	10 x 16	10 x 14 1/4	10 x 17 1/2
12	12 x 16 1/8	12 x 19	12 x 16 5/8	12 x 20 1/2
14	14 x 17 3/4	14 x 21	13 1/4 x 19 1/8	13 1/4 x 23
16	16 x 20 1/4	16 x 23 1/2	15 1/4 x 21 1/4	15 1/4 x 25 1/2
18	18 x 21 5/8	18 x 25	17 x 23 1/2	17 x 28
20	20 x 23 7/8	20 x 27 1/2	19 x 25 3/4	19 x 30 1/2
24	24 x 28 1/4	24 x 32	23 x 30 1/2	23 x 36

Prices on application.

Ring Gaskets cover the faces of flanges to inside of bolts, and will always be furnished unless otherwise ordered.

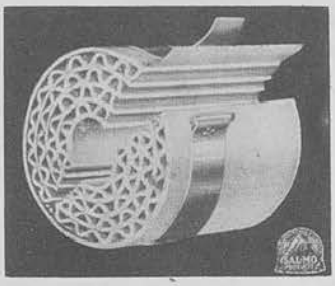
Full Faced Gaskets are furnished without bolt holes; bolt holes will be punched at an extra charge when so ordered.

All above gaskets furnished 1/16" thick and in cloth insertion rubber, red rubber or asbestos composition.

Corrugated Copper Gaskets

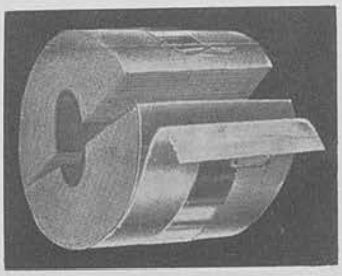
Size of Valve or Fitting In.	Copper Asbestos (Standard Weight) Plain Copper Each	Asbestos Copper Each	In. and Out. Diam. In.	Plain Copper (Extra Heavy Weight) Plain Copper Each	Asbestos Copper Each	In. and Out. Diam. In.
1	$.11	$.16	1 x 2 3/16	$.11	$.18	1 x 2 3/4
1 1/4	.12	.20	1 1/4 x 2 13/16	.15	.27	1 1/4 x 3 1/4
1 1/2	.15	.24	1 1/2 x 3 3/8	.22	.30	1 1/2 x 3 7/8
2	.21	.32	2 x 4	.26	.36	2 x 4 3/8
2 1/2	.29	.40	2 1/2 x 4 7/8	.29	.45	2 1/2 x 5
3	.31	.48	3 x 5 3/8	.43	.54	3 x 6
3 1/2	.47	.56	3 1/2 x 6 3/8	.47	.63	3 1/2 x 6 5/8
4	.47	.64	4 x 6 3/4	.52	.72	4 x 7
4 1/2	.45	.72	4 1/2 x 7	.62	.81	4 1/2 x 7 3/4
5	.55	.80	5 x 7 3/4	.74	.90	5 x 8 1/2
6	.63	.96	6 x 8 3/4	.92	1.08	6 x 9 7/8
7	.80	1.12	7 x10	1.13	1.26	7 x11
8	.89	1.28	8 x11	1.25	1.44	8 x12

ASBESTOS PIPE COVERING, SHEETS AND BLOCKS



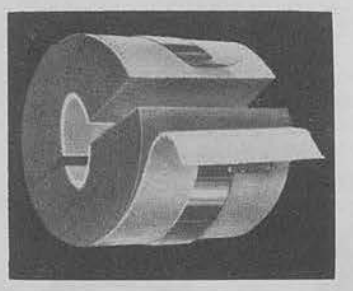
AIRCELL PIPE COVERING

A light, durable, fireproof Pipe Covering for low pressure steam and hot water pipes. For all standard pipe sizes; also in sizes for copper tubing and pipe.



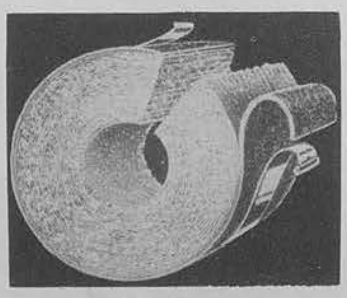
ANTI-SWEAT PIPE COVERING

Eliminates the danger of damage to walls, ceilings and furnishings by sweating, dripping cold water pipes. Made of wool felt with inner water proof lining. For all standard pipe sizes; also for copper tubing and pipe.



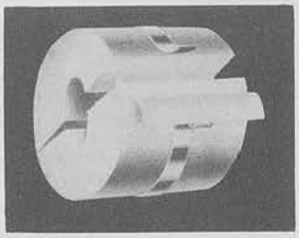
SOLID WOOL FELT PIPE COVERING

Made of soft wool felt and lined with heavy asbestos paper for hot water pipes, with asphalt paper for cold water pipes, or dual liner for either hot or cold water pipes. For all standard pipe sizes; also in sizes for copper tubing and pipe.



SPONGED FELTED PIPE COVERING

For underground steam mains and high pressure lines.



85% MAGNESIA PIPE COVERING AND BLOCKS

Fireproof and a non-conductor of heat. The combination of 85% Carbonate of Magnesia and 15% Asbestos fibre is an excellent fireproof insulation material.

SECTIONAL COVERINGS

PRICE PER LINEAL FOOT

Inside Diameter of Pipe	Standard Thickness	1½ Inch Thickness	2 Inch Thickness	Double Standard Thickness	3 Inch Thickness
Inches					
½	$0.22	$0.46	$0.75	$0.65	$1.20
¾	.24	.49	.80	.70	1.35
1	.27	.52	.85	.75	1.40
1¼	.30	.56	.90	.80	1.45
1½	.33	.60	.95	.85	1.55
2	.36	.64	1.00	.90	1.65
2½	.40	.70	1.05	1.00	1.75
3	.45	.76	1.15	1.10	1.90
3½	.50	.82	1.25	1.20	2.05
4	.60	.88	1.35	1.40	2.20
4½	.65	.94	1.45	1.50	2.35
5	.70	1.00	1.55	1.60	2.50
6	.80	1.10	1.70	1.80	2.70
7	1.00	1.20	1.85	2.25	2.90
8	1.10	1.35	2.00	2.50	3.15
9	1.20	1.50	2.20	2.70	3.40
10	1.30	1.65	2.40	2.90	3.65
12	1.85	1.85	2.70	4.10	4.10
14	2.10	2.10	3.00	4.60	4.60
16	2.35	2.35	3.30	5.10	5.10

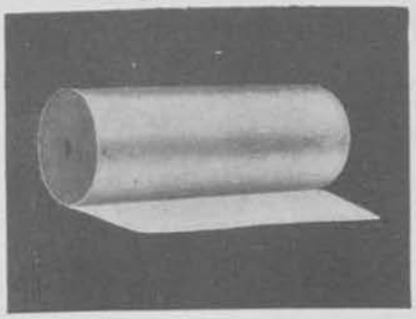
85% MAGNESIA BLOCKS

PRICE PER SQUARE FOOT

⅞ inch	$0.27	2¼ "	.68
1 "	.30	2⅜ "	.72
1⅛ "	.34	2½ "	.75
1¼ "	.38	2⅝ "	.79
1⅜ "	.42	2¾ "	.83
1½ "	.45	2⅞ "	.87
1⅝ "	.49	3 "	.90
1¾ "	.53	3¼ "	.98
1⅞ "	.57	3½ "	1.05
2 "	.60	3¾ "	1.13
2⅛ "	64	4 "	1.20

DISCOUNTS ON APPLICATION

Cold Water Paste and Paint carried in stock. Prices on request.

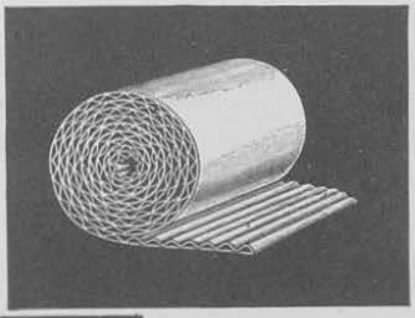


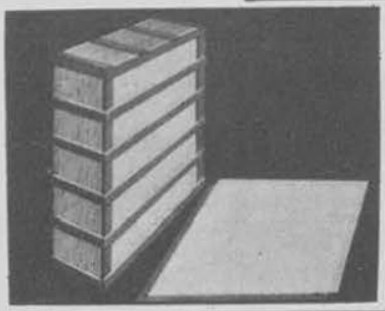
ASBESTOS PAPER

10, 16 lbs. per 100 square feet, also 1/16" and ⅛" thick containing approximately 50 or 100 pounds.

ASBESTOS CORRUGATED AIRCELL PAPER

250 Square Foot Rolls





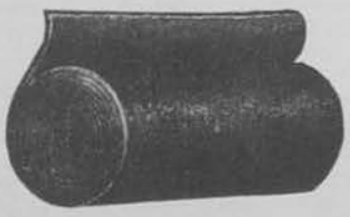
ASBESTOS MILLBOARD

Efficient protection against fire and heat. For fire screens, partitions, electrical insulations, stove and oven linings.

Thickness, inches	Per sheet, 42" x 48", pounds	Per square ft., ounces
1/32	2.5	2.9
3/64	3.5	4.0
1/16	4.6	5.3
5/64	6.0	6.9
3/32	7.0	8.0
1/8	9.0	10.3
5/32	11.3	12.9
3/16	13.3	15.2
1/4	17.6	20.1
5/16	21.4	24.4
3/8	25.2	28.8
1/2	31.5	36.0
5/8	44.1	49.0
3/4	46.6	53.3

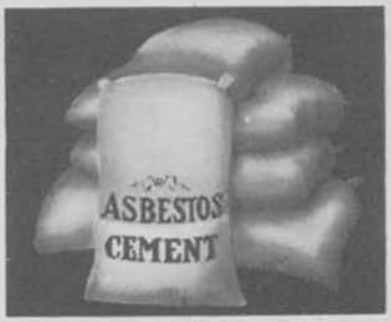
Prices upon application.

Hair Felt



Made of carefully selected hair in all the regular thicknesses.

Thickness Inches	In Bales of About Sq. Ft.	Price per Sq. Ft.
½	300	.16
¾	300	.20
1	300	$.24



ASBESTOS BOILER CEMENT

Composed of selected asbestos fibres and high grade insulating materials.

Furnished in 100-lb. burlap bags sufficient for covering 27 sq. ft. to a 1-inch thickness.

85% MAGNESIA CEMENT

60 Pound Bags

Exceptionally light. Large covering capacity and especially adapted for irregular surfaces.

Prices upon application.

Asbestos Rope Packing

Used extensively for packing engine piston rods, etc. Made twisted and braided. Twisted is made from asbestos yarns, twisted around an asbestos core. Braided is made of twisted asbestos rope covered with one or more asbestos jackets.

Made in sizes ¼, ½, 1 inch in diameter. Price.....per Pound **.50**

Asbestos Wick Packing

Used on stems of globe and angle valves. Made of pure, long fibre asbestos. Heat proof and acid proof. Dip it into some graphite mixed with oil before using. Made in size ‡ inch in diameter and wound in balls of ¼, ½ and 1 pound each.

Per Pound ..... per pound **.60**

Cotton Candle Wicking

A good grade, heavy spun, white cotton wicking, used extensively for packing valves and plumbing fittings.

Put up in 2-ounce balls of about 15 yards.

Per pound..... per pound. **.60**

Improved Ingalls Boiler Tube Cleaners

No. 4 Ingalls

No. 5 Ingalls—With Brush

Adjusts itself to conform to inside of tube. Flange strengthens parts reducing hazard of breakage. Spring never sets or wears out. Pressed steel shell cannot break. Made in all sizes from 1½ to 4½ inches. Sizes smaller than 2-inches take same price as 2-inches.

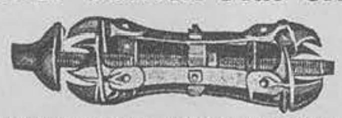
No. **4** Ingalls Cleaner ....per Diam. Inch **1.00**
No. **5** Ingalls Cleaner with Brush.per Diam. Inch **1.25**

Elliptical Flue Scrapers

Made from malleable castings and spring steel.

Size Ins.	Each	Size Ins.	Each	Size Ins.	Each
1	2.00	2½	2.50	3¾	3.75
1½	2.00	2¾	2.75	4	4.00
1¾	2.00	3	3.00	4½	4.50
2	2.00	3¼	3.25	5	5.00
2¼	2.25	3½	3.50	...	....

Engineers' Favorite Flue Cleaners

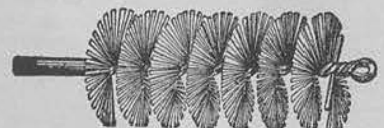


Turning rod or handle, contracts ends until scraper passes into flue. Turning handle or rod in opposite direction expands handle or rod until it fits the tube.

Sizes are for outside diameter of tubes, from 1¾ to six inches. Sizes smaller than 2 inches same price as 2 inches.

Size Ins.	Price Each	Size Ins.	Price Each	Size Ins.	Price Each
1¾-2	2.00	3	3.00	4	4.00
2¼	2.25	3¼	3.25	4½	4.50
2½	2.50	3½	3.50	5	5.00
2¾	2.75	3¾	3.75	6	6.00

Spiral Flue Brushes



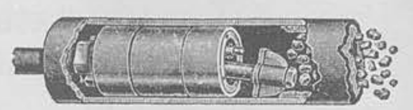
This brush is made of flat wire so set as to form a complete circle of cleaning surface. Both brass and plain steel or tinned steel wire can be furnished.

In ordering flue brushes give outside measurement of flue.

Size In.	Price Each	Size In.	Price Each	Size In.	Price Each
1½	2.00	2¾	2.75	4	4.00
1¾	2.00	3	3.00	4½	4.50
2	2.00	3¼	3.25	5	5.00
2¼	2.25	3½	3.50	6	6.00
2½	2.50	3¾	3.75	...	...

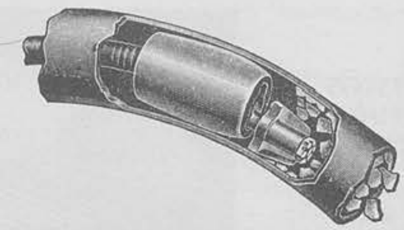
Dean Boiler Tube Cleaners

For Removing Scale

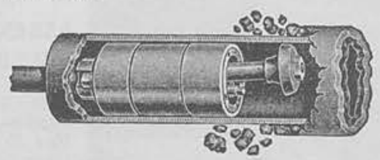


The Dean removes scale by vibration. It delivers from 3,500 to 10,000 taps per minute, with force varying from 1¹⁄₁₆ to 2½-foot ounces. The tremor produced by these taps causes the scale to loosen and fall.

The Dean is operated with either steam or air.



The Dean operates in either water tube or return tube boilers. The same machine may be used in both types provided the size of the tubes is the same, simply by changing the vibrator heads.



It can be equipped with extra attachments, enabling it to operate in two or more different sizes of boiler tubes.

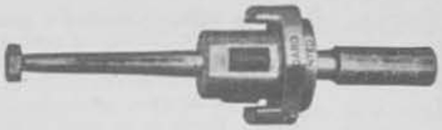
No. 20 Dean. For 4-inch Straight Water Tubes

No.	Standard Models Size Tubes Inches	Price Each
No. 1	1½ O. D.	$115.00
No. 2	1¾ "	115.00
No. 3	2 "	110.00
No. 3A	2¼ "	110.00
No. 4	2½ "	110.00
No. 4A	2¾ "	100.00
No. 5	3 "	100.00
No. 6	3½ "	100.00
No. 7	4 "	100.00
No. 8	4½ "	105.00
No. 8-O	5 "	105.00
No. 8-1	5½ "	110.00
No. 9	6 "	110.00
No. 10	curved boiler tubes	115.00
No. 11	Loco. Arch tubes	115.00

No. 20 Special Dean for 4-inch straight water tubes. 100.00
No. 25 " " " 3½ " " " " . 100.00
Swivel Coupling (for Dean Cleaners)............. 15.00

When ordering, state whether for water tube or return tube boilers or both. The proper vibrator heads will then be furnished with the cleaner.

No. 3 Wiedeke Standard Roller Expanders



This expander, for hand use only, is designed for those having an occasional use for expanding tubes. The mandrel and rolls are made of tool steel and tempered. The frame is of one piece, furnishing a solid bearing for the guard at all times, neither collar nor pin required. These generally loosen from service, throwing expander out of commission. Has no cap or screws in front to wear loose or get lost. Guard can be removed if necessary.

Tables show smallest inside diameter any expander passes into and what it will expand to, enabling one to select an expander with proper range, regardless if used on straight tubes, swedged tubes or pipe.

Size of Expander for O. D. Tubes Inches	Will Enter and Expand Tubes I. D. from, Inches	Approx. Weight Boxed Pounds	Price, Each — Expander Complete	Extra Mandrels	Extra Rolls
1	27/32 to 1	2½	$10.00	$2.00	$.20
1¼	1 1/16 " 1¼	2¾	10.00	2.00	.20
1½	1 9/32 " 1½	3	10.00	2.00	.20
1¾	1½ " 1¾	4¼	10.00	2.00	.20
1⅞	1 39/64 " 1⅞	4½	10.00	2.00	.20
2	1 23/32 " 2	5	10.00	2.00	.20
2¼	1 15/16 " 2¼	6	12.00	2.00	.20
2½	2 5/32 " 2½	7½	14.00	2.50	.20
2¾	2 13/32 " 2¾	8½	16.00	3.25	.35
3	2⅝ " 3	10½	18.00	3.75	.35
3¼	2⅞ " 3¼	14	20.00	4.25	.50
3½	3⅛ " 3½	17	23.00	4.75	.50
3¾	3⅜ " 3¾	17½	25.00	5.50	.60
4	3 9/16 " 4	20½	27.00	5.75	.60

No. 254 Wiedeke Ideal Adjustable Condenser Expanders

For Power or Hand Use

Made of special analysis steel, mandrels and rolls of selected tool steel, all carefully heat treated for service, are efficient, durable and economical for power or hand use. Designed to roll copper, brass or steel tubes in condensers, heaters, heat exchangers and similar units.

Steel frames are one piece, have threaded shank with telescoping collar which is adjustable and reversible and adaptable for tube sheets ½ to 1¼ inches thick. Rolls tube ends full length.

No. 254-M square mandrel shanks are 7/16 inch square and ¾ inch long; No. 254-M5 round shanks are 7/16 inch in diameter, 1½ inches long for tubes with outside diameter ⅝ to 15/16 inch inclusive; 9/16 inch in diameter, 1½ inches long for tubes with outside diameter 1 to 1½ inches inclusive.

When ordering always state number and largest size expander to enter tubes. List shows smallest inside diameter expanders will enter and expand to.

Size of Expander for O.D. Tubes Inches	Enters I.D. Tubes and Expands to, In.	Approx. Ship. Wt. Pounds	Expander Complete Each	Extra Mandrels Each	Extra Rolls Each	Extra Collars Each
⅝	31/64 to 9/16	1	$16.00	$3.50	$.30	$5.00
11/16	35/64 to ⅝	1	16.00	3.50	.30	5.00
¾	19/32 to 11/16	1	16.00	3.50	.30	5.00
13/16	21/32 to ¾	1	16.00	3.50	.30	5.00
⅞	45/64 to 13/16	1	16.00	3.50	.30	5.00
15/16	¾ to ⅞	1	16.00	3.50	.30	5.00
1	51/64 to 15/16	1½	16.00	3.50	.30	5.00
1 1/16	27/32 to 1	1½	16.00	3.50	.30	5.00
1⅛	29/32 to 1 1/16	1½	16.00	3.50	.30	5.00
1¼	1 to 1 3/16	2	16.00	3.50	.30	5.00
1½	1¼ to 1 7/16	2	16.00	3.50	.30	5.00

No. 40 Wiedeke Ideal Tube Expanders

Frictionless, All Steel, Self Feed

For power use; can also be used by hand.

Size of Expander for O. D. Tubes Inches	Will Enter and Expand Tubes I. D. from Inches	Approx. Weight Boxed Pounds	Price, Each — Expander Complete	Extra Mandrels	Extra Rolls
1	27/32 to 1	3½	$16.00	$3.50	$.30
1⅛	15/16 " 1⅛	4	16.00	3.50	.30
1¼	1 1/16 " 1¼	4	16.00	3.50	.30
1⅜	1 5/32 " 1⅜	4½	16.00	3.50	.30
1½	1 9/32 " 1½	4½	16.00	3.50	.30
1⅝	1⅜ " 1⅝	6½	16.00	3.50	.30
1¾	1½ " 1¾	7	16.00	3.50	.30
1⅞	1 39/64 " 1⅞	7½	16.00	3.50	.30
2	1 23/32 " 2	8	16.00	3.50	.30
2⅛	1 13/16 " 2⅛	8½	18.00	3.50	.30
2¼	1 15/16 " 2¼	9	18.00	3.50	.30
2⅜	2 1/16 " 2⅜	10½	19.50	4.50	.30
2½	2 5/32 " 2½	11	19.50	4.50	.30
2⅝	2 9/32 " 2⅝	13½	22.00	4.50	.60
2¾	2 13/32 " 2¾	14½	22.00	4.50	.60
3	2⅝ " 3	17	22.00	5.50	.60
3¼	2⅞ " 3¼	18½	24.50	5.50	.70
3½	3⅛ " 3½	21	24.50	6.50	.70
3¾	3⅜ " 3¾	23	27.00	6.50	.80
4	3 9/16 " 4	28	27.00	7.50	.80
4¼	3 13/16 " 4¼	31	40.00	10.00	1.10
4½	4 1/16 " 4½	32	50.00	10.00	1.10
4¾	4¼ " 4¾	35	55.00	15.00	2.00
5	4½ " 5	39½	55.00	15.00	2.00
5¼	4 11/16 " 5¼	40½	60.00	18.00	2.50
5½	4 15/16 " 5½	51	60.00	18.00	2.50
6	5⅜ " 6	55	65.00	20.00	3.00

No. 375 Wiedeke Ideal Self-feed Tube Cutters

This cutter cuts off new tubes with a bevel ready for beading, partly tightening the tube at the same time. By moving the guard back, old tubes can be cut off on the inside of boiler head. All wearing parts are made of steel and tempered, making it a first class tool for boiler makers or boiler room use.

Prices show smallest inside diameter any tube cutter passes into, enabling the selection of a tube cutter with proper range, regardless if used on straight tubes, swedged tubes or pipe.

Size of Tube Cutter for O.D. Tubes, In.	Enters and Cuts Tubes I.D. Inches	Tube Cutter Complete Each	Extra Cutters Each	Extra Cutters Per Doz.	Approx. Ship. Wt Tube Cutter Lbs.
2	1 23/32	$30.00	$.80	$4.80	18
2¼	1 31/32	32.00	.80	4.80	19
2½	2 7/32	34.00	.80	4.80	20
2¾	2 15/32	36.00	.80	4.80	22
3	2 11/16	44.00	.80	4.80	29
3¼	2⅞	46.00	.80	4.80	30
3½	3⅛	48.00	.80	4.80	32
4	3⅝	50.00	.80	4.80	33
4½	4 1/16	80.00	1.60	9.60	51
5½	4 15/16	95.00	2.00	12.00	55

McDougall Closed Top Pitcher Pumps

Figure 1—Open Spout, Figure 2—Closed Spout

Fig. 1

For use over shallow wells or cisterns.

The bearer top is secured to the cylinder with a set screw, and by loosening this the handle can be set in any desired position.

Bases are regularly tapped for iron pipe as specified in table below.

Green and gold finish.

No.	Diam. Cyl. In.	Fitted for Pipe In.	Ship. Wt. Lbs. With Pitcher Spout	Ship. Wt. Lbs. With Closed Spout
1	2½	1	22	22
2	3	1¼	27	26
3	3½	1¼ or 1½	30	28
4	4	1½	35	34

McDougall Cottage, Pitcher and Force Pumps

No. 349

Gilt Edge

With 3-inch nickel-plated brass cylinder.

Fitted for 1¼-inch pipe.

Finished in Royal blue enamel and gold striping.

No. 348

A small pitcher-spout pump for use where water is required at the pump only.

Shipping weight, 15 pounds.

No. 349

A force pump by which water may be forced to a higher level for bath or any domestic purpose, or may be drawn from the spout if desired.

Shipping weight, 20 pounds.

McDougall Bracket Bases

For Pitcher Spout, Cistern and Force Pumps Shown Above

Useful in places where a pump on base would not prove practical.

Bracket is strongly made and six ¼-inch countersunk holes are bored for attaching to wall. Pumps may be held stationary in bracket or can be swung to any position by loosening one bolt.

McDougall Hand Force Pumps

Figure 45 on Base, Figure 46 on Plank Base

For house use.

Extra long, well balanced handle may be set at any desired position, or may be left loose and swung out of the way when not in use. Long handle materially lessens work when forcing water to upstairs tanks.

Fig. 45

The arrangement of cock spout is convenient when water is required at pump.

Can be furnished with base or on brackets which are attached to wall or plank base.

With iron or brass cylinders.

Finished in green enamel with gold striping.

Suction fitted for 1¼-inch iron pipe.

No.	1	2
Diameter.....in.	2½	3
Ship. wt.....lbs.	56	60

McDougall Gasoline Pumps

This pump furnishes a practical and simple way of pumping oil or gasoline from a drum to a car, tractor or power boat. It is light to handle, and sturdily built. There is no need to tilt, pull or lift unwieldy drums.

The base of the pump is threaded for both 1½ and 2-inch standard drums. These threads screw in to shoulder against a leather gasket, making it impossible for water to get into drum when pump is in position. Drum can be left outside with pump attached in all kinds of weather. This greatly reduces fire hazard of having a large supply of gasoline in the garage.

A special vent plug is supplied, which is screwed into the ¾-inch opening in the drum.

The special ¾-inch collapsible suction pipe can be used on all sizes of drums.

Spout is threaded for ¾-inch hose attachment.

With seamless brass cylinder.

Specially treated leathers are impervious to gasoline.

Shipping weight, 16 pounds.

"Ideal" Double-Action Oscillating Force Pump

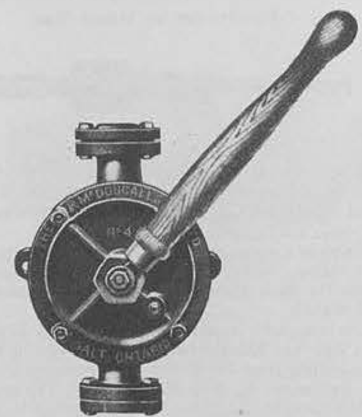


Fig. 182

This style Force Pump is exceptionally easy working and efficient. No leathers to wear out. Double acting. Suction lift 20′. A foot valve is recommended for use with this style of pump. Made in iron with brass fittings or all brass for pumping liquids which are detrimental to cast iron.

No.	Figure 182			
	Fitted for Pipe	Iron Cyl. Cipher	Brass Cyl. Cipher	Shipping Weight
2	1	Coyish	Crash	20
3	1¼	Cozen	Crave	25
4	1¼	Cozening	Creek	33
5	1½	Cozened	Craving	38

Pump
With Iron Handle

Figure 526 shows a light, strong Pump suitable for shallow wells, and outside cisterns. The base is adjustable so that handle can be raised or lowered as desired.

No.	Diameter and Length Cyl. Inches	Cipher	Shipping Weight, Lbs.
1	2½ x 10	Hogan	59
2	3 x 10	Hope	60
3	3½ x 10	Hoper	61

Fig. 526 and 132

Pump
With Wood Handle

Figure 132 illustrates our new Set Length Lift Pump with adjustable base.

This Pump is fitted with revolving top and wood handle, and is a very desirable Pump for shallow wells.

No.	Diameter and Length Cyl. Inches	Cipher	Shipping Weight, Lbs.
1	2½ x 10	Heel	63
2	3 x 10	Herd	65
3	3½ x 10	Hive	67

Fig. 134

IMPROVED FORCE PUMPS WITH NEW DESIGN COCK SPOUT

Many new features are embodied in this latest edition to our extensive line of well pumps. The bearer top is securely held by three set screws which tighten against a flange on the standard. A rubber washer is inserted between the top and the standard which insures an airtight joint. The handle may be moved to any desired position by loosening the screws in the bearer top, which allows complete top section to swing. Stroke is adjustable to 4, 6 or 8″ for hand pumping, 11″ max. for jack or windmill. Cock spout is very simple and positive in its operation and is built to give long service. Back opening is tapped for 1¼ pipe and heavy angle-iron brace insures steadiness in fast pumping. All parts are made extra heavy and many features not mentioned will be apparent on examination.

Fig. 134 illustrates the force pump with cock spout and Iron Handle.

Fig. 137 shows the adaption of wood handle to the same standard.

These force pumps are also made with plain spouts, and hose connections are supplied with either style.

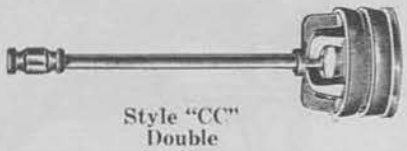
For cylinders suitable for this line see our standard cylinder list. These heads are made complete with set length and cylinders. See Price Sheet.

Tapped near spout for 1¼″, 1½″ or 2″ pipe. State size required when ordering.

Fig. 137

PLUNGERS

Style "B" Single Leather



Style "CC" Double Leather

The plunger, next to the valve seat, is the most important part of the pump. If the plunger and valve seat are defective, no matter what care is taken in the construction of the balance of the pump, it will not operate satisfactorily.

All our cylinders, Fig. 58 to 62—10-and 12-inch lengths in all sizes are regularly fitted with "B" Plungers.

McDougall Plungers are perfectly designed and are made in a variety of sizes in both single and double leather styles. For duties where ordinary Iron Plungers are not suitable they can be supplied either with Brass Cage and Iron Follower or all Brass. See price list.

Cylinders 14 inches in length or longer are regularly fitted with "CC" Plungers.

Shallow Well Electric Water Systems

Suitable for vertical suction lifts not exceeding 22 feet—can be used on wells, cisterns, lakes, rivers, etc.

Fig. 1406—¾ Suction—¾ Discharge.
Fig. 1407—1" Suction—¾ Discharge.

For use in summer cottages or small homes, or wherever fresh water is required direct from the well.

Furnished complete, large air chamber, which takes the place of the usual pressure tank. Standard Pump with capacity of either 250 or 340 gallons per hour. 1/6 or ¼ H.-P. motor—automatic pressure controller — relief valve — air valve—V-Belt drive.

FRESH WATER UNIT

Fig. 1406FR—¾ Suction—¾ Discharge.
Fig. 1407FR—1" Suction—¾ Discharge.

Figure and Number	Capacity Gallons Per Hour	Shipping Weight	Gallons Tank Size	H.-P. of Motor
1406T-1	250	210 lbs.	30	⅙
1406T-2	250	225 lbs.	42	⅙
1406T-3	250	300 lbs.	82	⅙
1406T-4	250	350 lbs.	120	⅙
1407T-1	340	215 lbs.	30	¼
1407T-2	340	230 lbs.	42	¼
1407T-3	340	310 lbs.	82	¼
1407T-4	340	360 lbs.	120	¼

Cast-iron base for Pump and Tanks as illustrated is furnished as an extra.

NOTE—This base is furnished for 30 or 42-gallon tank only.

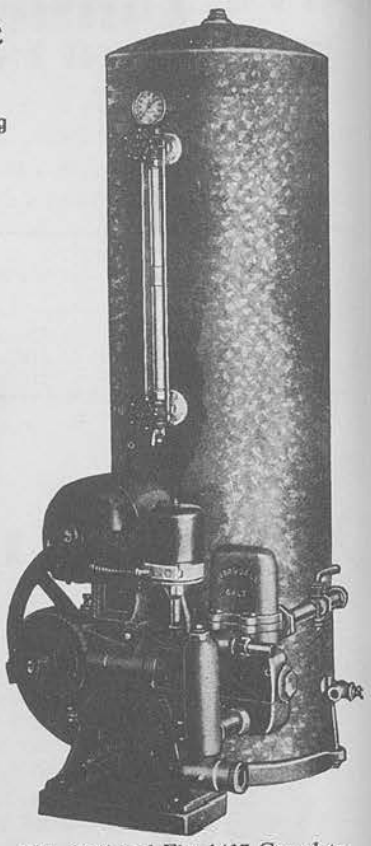


Fig. 1406 and Fig. 1407 Complete Unit with Tank, Base furnished as an extra.

McDougall Self-Oiling Bulldozer Pumps

For Farms, Sprinkler Irrigation Systems, Market Gardens, Factories, Service Stations, Golf Clubs, etc.

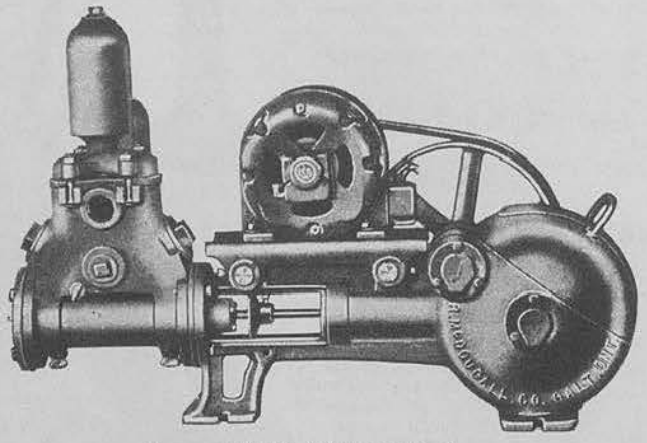


Figure 1476VM (V Belt Drive)

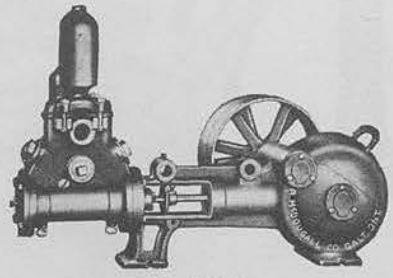


Fig. 1476A

Pumps are also furnished in all sizes with tight and loose pulleys, and with single pulley and gravity belt tightener.

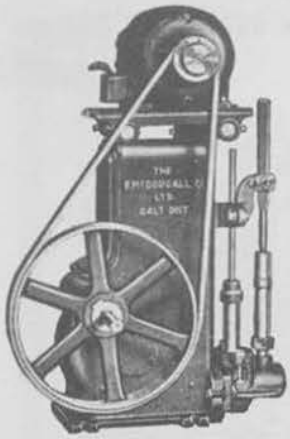
Illustration shows Fig. 1476A with tight and loose pulleys for gas engine drive.

With Gravity Belt Tightener Pump is specified as Fig. 1476B.

Figure	Capacity, Gals. Per Hour	Diam. Cyl. and Length Stroke	Max. Strokes Per Min.	H.P. Required for 100-Ft. Head or 50 Lbs. Pressure	Pulley Size	Suction and Discharge Tapped	Belts and Motor Pulleys	Shipping Weight (No Motor)
1476VM No. 1	500	2½x3"	70	½	15"	1¼"	Single	200 lbs.
1476VM No. 2	1,000	3 x4"	70	1	20"	1½"	Double	325 lbs.
1476VM No. 3	2,000	4 x5"	50	2	24"	2 "	Triple	600 lbs.
1476VM No. 4	3,000	5 x5"	50	3	24"	2½"	Triple	625 lbs.

Air Valves for all sizes furnished as an extra if required.

McDougall Self-Oiling Deep-Well Working Heads

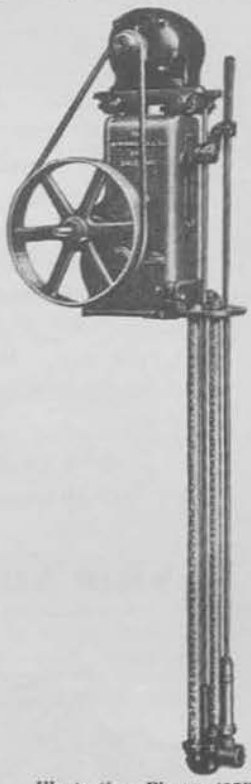


Illustrating Figues 497A, 487A and 488A. Showing V Belt Drive to Motor.

McDougall Self-Oiling Deep-Well Working Heads are designed to give dependable service on all depths of wells. They are made in three sizes with 6-9 and 12" stroke, and being self-oiling throughout require no attention.

They are ideal equipment for Farms—Creameries — Golf Clubs — Hotels—Summer Resorts—Factories and Mines, and in fact any place where the water in the well is beyond the reach of surface pump, or, in other words, below 24 feet.

The workmanship and material which enter into their construction is vastly superior to what is considered good enough for a pump, and this ensures quiet, untroubled service.



Illustrating Figues 497B, 487B and 488B with Frost Proof Set Length 4' or 6' for underground discharge.
Showing V Belt Drive to Motor

In selecting the proper deep-well pumping equipment for any installation, a number of necessary points must be considered—i.e., the amount of water required per hour or day—the depth of the well—the inside diameter of the casing if a drilled well—power available, whether electric motor or gas engine—the distance from the surface of the ground to the lowest water level, and whether pressure or gravity tank system is desired.

The total head against which a pump is operating is figured by adding the distance in feet from the position of the pump head to the lowest water level in the well, to the tank pressure which can be reduced from pounds pressure to feet head by multiplying the maximum pounds pressure in the tank by 2.3. Any vertical height from the pump head to the tank should also be added. Horizontal suction and discharge lines within reason do not add materially to the head.

ALL SIZES BACK GEARED 7 TO 1

The following table will give some idea of the capacity that can be secured with different working heads on wells of varying depth, and also the horse-power that will be required for the operation of the outfit.

Working Head Figure Number	Length of Stroke	Number Strokes Per Minute	Size of Cylinder	Depth of Well to Lowest Water Level	Capacity in Gallons per Hour	Horse-Power Required (Electric Motor) (Includes Necessary Power for Suction Head Plus 40 Lbs. Tank Pressure)
497A or 497B	6"	40	2"	50'	200	½ H.-P.
497A or 497B	6"	40	2½"	50'	300	½ H.-P.
497A or 497B	6"	40	3"	50'	440	¾ H.-P.
487A or 487B	9"	40	3"	60'	660	1½ H.-P.
487A or 487B	9"	40	3¼"	60'	775	1½ H.-P.
487A or 487B	9"	40	3½"	60'	900	2 H.-P.
488A or 488B	12"	34	3½"	60'	1,080	2½ H.-P.
488A or 488B	12"	34	4"	60'	1,325	3 H.-P.
488A or 488B	12"	34	4½"	60'	1,680	4 H.-P.

For capacity of different sized cylinders and horse-power required for different total heads complete table is given on page 52 of our general catalogue.

Maximum horse-power that can be used with these heads is as follows:—

Fig. 497-6" stroke—1 H.P. Fig. 487-9" stroke—3 H.P. Fig. 488-12" stroke—5 H.P.

These heads should, therefore, not be used with larger cylinders or on greater total heads than can be handled by the maximum size motor the head is designed to operate with.

Figure	Stroke	Discharge	Suction	Pulleys Tight and Loose	Pulley Single With Tightener	Pulley for V-Belt Drive	Max. Strokes Per Min.	Shipping Weight Above-ground Discharge No Motor	Shipping Weight Underground Discharge No Motor
497 A or 497 B	6"	1¼"	2½" Bushed 1¼"	12x2	16x3"	16x2½	60	215 lbs.	235 lbs.
487 A or 487 B	9"	2"	3"	16x3	24x3"	24x2½	40	355 lbs.	415 lbs.
488 A or 488 B	12"	2½"	4"	20x4	30x4"	30x4	35	800 lbs.	850 lbs.

PRICES QUOTED ON APPLICATION

DIAPHRAGM SUCTION PUMP

Bottom Suction

Fig. 401

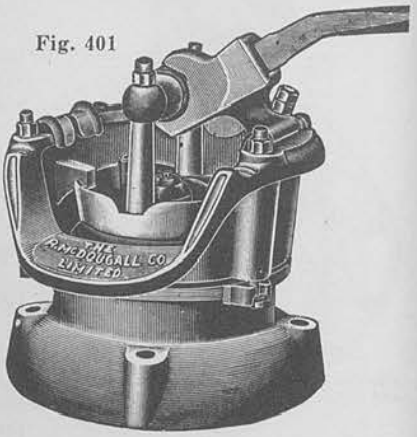


Fig. 401 represents the most perfect design of Diaphragm Pump. Lever is reversible and can be used at back of pump or at either side. Lower valve is metal, leather faced, easy of examination, and readily removed. Waterways are large, and diaphragm is made of best quality rubber. Pump combines simplicity with strength. With these Pumps the diaphragm takes the place of the plunger. They are particularly adapted for water containing mud, sand, gravel, sewage, coal, chips, or any semi-fluid matter. Pumps with bottom suction are used in places where they will remain stationary, as on vessels, barges, wharves, etc. We regularly fit as in our table below:

Suction, 3-inch Iron Pipe. Cipher—Detail. Shipping weight, 170 lbs.

Can be supplied for 4-inch iron pipe if specified.

Fig. 401 can be fitted for power in same manner as Fig. 428,

Side Suction

Fig. 402

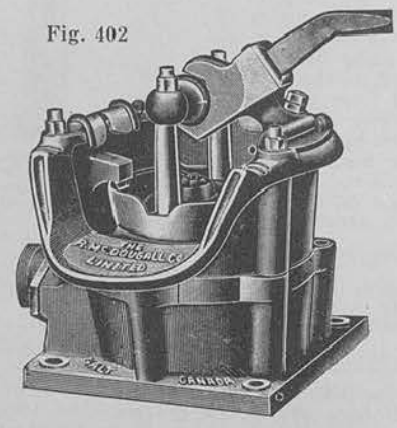


Fig. 402, new Diaphragm Pump, is similar in general construction to Fig. 401, previously described, differing only in that it has side suction and therefore, a different kind of suction valve. This valve is iron, leather faced, resting upon an inclined seat, thus affording smallest obstruction to any matter. Unless otherwise ordered, suction is cut 3-inch pipe thread, which is now the thread generally used on hose couplings of that size. We can fit to any special hose gauge if ordered. Suction hose, couplings, and strainers furnished at market prices.

Suction 3-inch Hose or Iron Pipe. Cipher—Detect. Shipping weight, 170 lbs.

Can be supplied for 4-inch iron pipe if specified.

Fig. 402 can be fitted for power in same manner as Fig. 428,

Diaphragm Force Pump

Maximum Suction Lift 15 Feet
Force 15 Feet

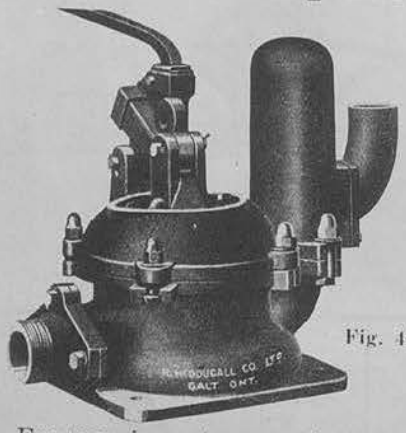


Fig. 428

Stroke	Capacity in Gallons		Suction and Discharge	Shipping Weight	Cipher
	Per Stroke	Per Hour			
3″	.75	2400	3″ Iron Pipe or Hose	200 lbs.	Index

For pumping out excavations, cellars, trenches, quarries, etc., or for similar services where large quantities of muddy or gritty water or any semi-fluids are to be handled.

Can be connected to power with our Fig. 427 pump jack. In ordering state whether pump is to be operated by hand or power so that proper lever may be sent. Water may be forced 15 feet vertically with this outfit, which is a decided advantage over the ordinary diaphragm pump in that it can be placed in a trench and water forced to top.

McDOUGALL PUMP JACKS

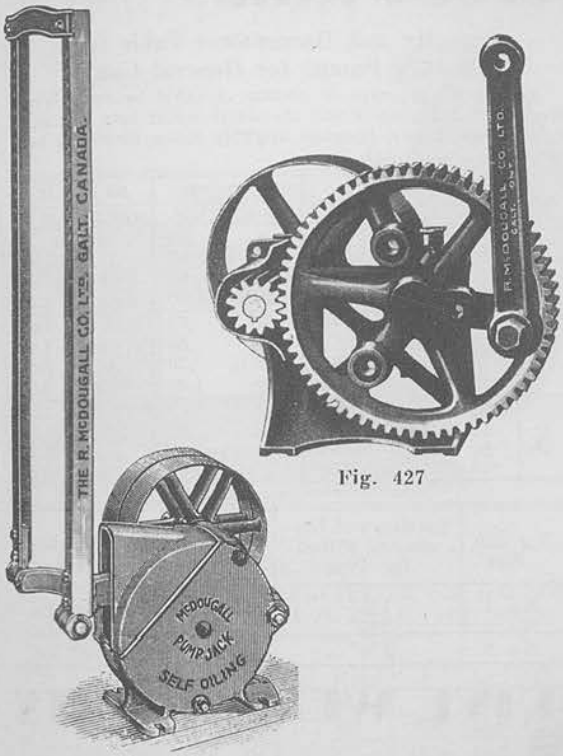


Fig. 427

Fig. 431

Fig. 427—SINGLE GEAR PUMP JACK

Especially designed to adapt pumps like Figures 428, 401 and 402 for engine drive.

Gear ratio 5- to 1- stroke, 4-, 6-, 8- and 10- inch. 4-inch stroke only is suitable for operating the above pumps.

Gears are machine cut and jack is furnished with 12″ x 3″ pulley for belt drive.

Frame is box type. Bearings all babbitted and lubricated by means of grease cups.

This Jack can also be supplied with connection for wood rod, and will be found to be a very serviceable outfit for any installation. It may be used either overhead or bolted to floor.

Please state when ordering which connection is required.

Fig. 431—SELF OILING PUMP JACK

For Gas Engine or Motor Drive.
Pulleys—Tight and Loose—12″ x 2″.
Single for Motor Drive—24″ x 2″.
Back Geared. Geared 6 to 1.

The illustration shows the latest addition to the McDougall line of pump jacks. All gears and moving parts are enclosed in a one-piece casting which forms the oil reservoir. This construction not only insures perfect and continuous lubrication but protects the moving parts from dust and dirt, greatly increasing the life of the jack. Furthermore, it guarantees perfect safety.

The gear and pinion are machine cut and operate in oil. The gear is fitted with an eccentric which operates a walking beam hinged at one end to the main frame or base. The revolving of the eccentric moves the forward end of the walking beam vertically, giving a 6″ stroke. Can be used in connection with any of our Well pumps. The arms are made from angle iron and are indestructible.

McDougall Double Acting Thresher Force Pumps

A practical outfit for numerous uses.

Has 5-inch cylinder. Valve seats are brass and valves are easily accessible by removing valve caps. Fitted for 2-inch suction and discharge with either hose or iron pipe, the cylinder being tapped inside for iron pipe connections when hose connections are removed. Spout may be set in any desired position.

All parts made extra heavy to guard against breakages so that repairs are seldom required.

Pump shipped complete with 2-inch suction hose strainer and 1-inch hose nozzle.

Capacity, 800 gallons per hour at 40 strokes per minute.

Fig. 513

McDougall New Model Horizontal Double-Acting Force Pumps

With 2½-Inch Cylinder and Cog Gear Handle

Designed for use on hand-operated pneumatic systems.

It has been demonstrated that considerable work is required with a 3-inch pump to raise pressure in a tank to over 30 pounds. This has been effectively overcome in this outfit. By using a 2½-inch cylinder and cog gear action on piston rod and handle customers will find this an ideal pump for this duty.

The cylinder is brass lined and valves are iron with heavy rubber face. Valve seats and piston rod are brass. Valves are accessible by loosening four bolts.

Air valve is supplied as regular equipment.

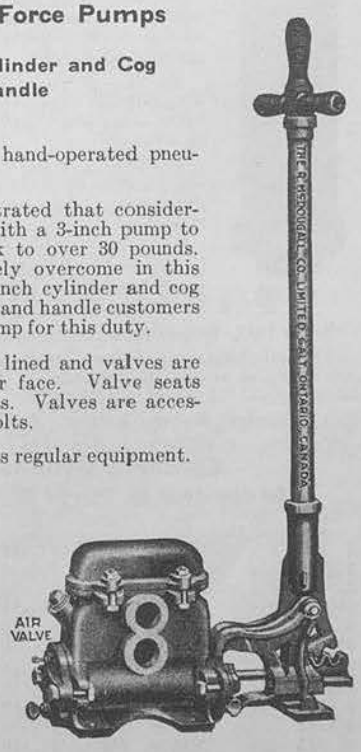
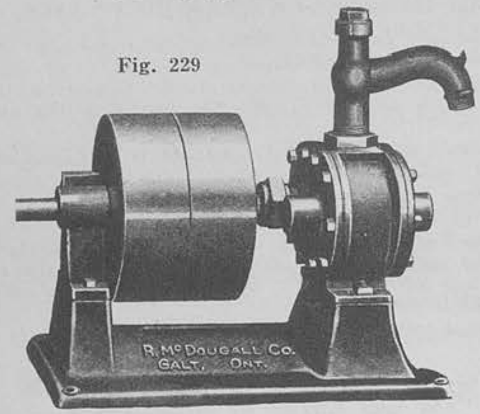


Fig. 186

Power Rotary Force Pumps

Fig. 229



For fire protection, oil pumping, circulating cooling water for gas engines, pumping gasoline or kerosene, etc., or under any conditions where suction lift and pressure required come within their ratings.

Exceptionally well built. Gears are heavy cast-iron cut from the solid, and are closely fitted to highly-finished cases.

Gooseneck spouts and hose connections are supplied as part of the equipment. Pumps may be connected with iron pipe by removing spouts.

Fitted with tight and loose pulleys. Shafts run in babbitted bearings.

Pumps may be run up to 300 R. P. M.

Capacity and Horsepower Table for Rotary Pumps for General Use

Actual Horsepower is shown in table below. When Horsepower shown is not standard motor size use next larger size motor, because slightly more power is better than not enough.

No.	Total Head in Feet	100 R. P. M.		200 R. P. M.		300 R. P. M.	
		G.P.M.	H.P.	G.P.M.	H.P.	G.P.M.	H.P.
1.	0	13	.35	26	.40	35½	.75
	10	12½	.40	26	.50	35	1.00
	50	10	.50	24½	.60	34	2.20
	75	8½	.55	23	.90	33½	2.40
2.	0	14	.40	30	.50	46	1.00
	10	13½	.50	29	.60	45	1.40
	50	13	.60	28½	.70	43	2.50
	75	12	.90	28	1.40	42	3.00
3.	0	17	.50	36	.60	55	1.25
	10	16	.60	35½	.70	54½	1.08
	50	15½	.80	34½	1.40	53½	2.90
	75	15	.90	32	1.70	52	3.00

Fig. 229 Size	Suction and Discharge Fitted for Pipe	Cipher	Shipping Weight
No. 1	1¼"	Earlier	80 lbs.
No. 2	1½"	Earth	112 lbs.
No. 3	1½"	Eased	120 lbs.

McDougall Standard Cylinders

No. 58

No. 58.—A shallow well cylinder regularly fitted with iron valve seats and B plunger. In 10 and 12-inch lengths.

No. 59.—A standard medium well cylinder with outside caps, regularly fitted with iron valve seats and CC plunger. Made in 14 and 16-inch lengths.

No. 60.—A standard medium well cylinder with inside or flush caps, regularly fitted with iron valve seats and B plunger. In 10 and 12-inch lengths.

No. 61.—A standard deep well cylinder with outside caps, regularly fitted with iron valve seats and CC plunger. In lengths over 16 inches.

No. 62.—A standard deep well cylinder with inside or flush caps, regularly fitted with iron valve seats. In lengths over 12 inches.

Inside nut cylinders as No. 60 should not be ordered in lengths under 12 inches unless pump head being used will allow for only a short stroke.

Brass valve seats fitted to any cylinder, no extra cost.

The following sizes of pipes are standard and all cylinders are fitted as stated in the absence of specifications to the contrary.

I.D. Cylinder..inches	2	2½	3	3½	4	4½	5	6
I.D. Pipe......inches	1	1¼	1¼	1½	1½	2	2½	3

Standard Cylinder List

As described by figures 58, 59, 60, 61, 62

Size In.	Pipe In.	Size In.	Pipe In.	Size In.	Pipe In.	Size In.	Pipe In.
2 x10	1	4½x12	2	3 x16	1¼	4½x18	2
2½x10	1¼	2 x14	1	3½x16	1½	5 x18	2½
3 x10	1¼	2½x14	1¼	4 x16	1½	6 x18	3
3½x10	1½	3 x14	1¼	4½x16	2	2 x20	1
4 x10	1½	3½x14	1½	5 x16	2½	2½x20	1¼
4½x10	2	4 x14	1½	6 x16	3	3 x20	1¼
2 x12	1	4½x14	2	2 x18	1	3½x20	1½
2½x12	1¼	5 x14	2½	2½x18	1¼	4 x20	1½
3 x12	1¼	6 x14	3	3 x18	1¼	4½x20	2
3½x12	1½	2 x16	1	3½x18	1½	5 x20	2½
4 x12	1½	2½x16	1¼	4 x18	1½	6 x20	3

DRIVE WELL POINTS

Washer Point
Fig. 56

Fig. 56

Trade No.	Diam. of Pipe Inches	Length of Pipe, Inches	Holes
300	1¼	20	50
301	1¼	24	60
302	1¼	30	80
303	1¼	36	100
320	1½	24	80
321	1½	30	110
322	1½	36	130
324	2	30	140
325	2	36	170

Fig. 57

Trade No.	Diam. of Pipe Inches	Length of Pipe, Inches	Holes
86	1¼	20	50
90	1¼	24	60
94	1¼	30	80
98	1¼	36	100
136	1½	24	80
140	1½	30	110
144	1½	36	130
164	2	30	140
168	2	36	170

Brass Jacket Point
Fig. 57

All sizes furnished in either No. 60 or No. 90 Gauze, specify which is required when ordering.

Points larger in diameter or longer in length quoted on application.

Single Stage Single Suction Centrifugal Pumps

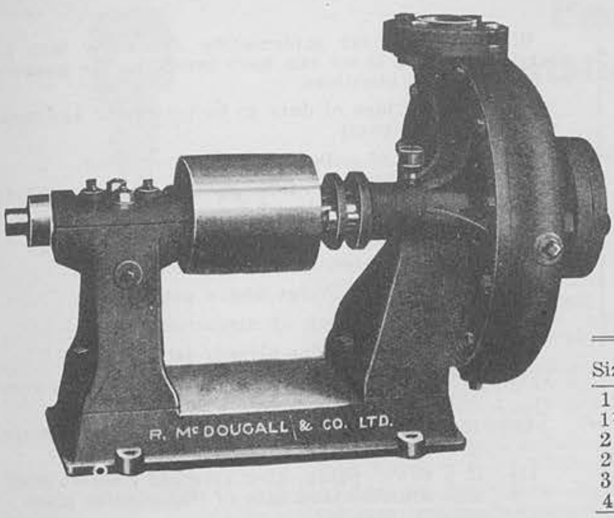


Fig. 230

For service up to 65 feet. Eminently suited for removing large quantities of water in most expeditious manner. Owing to the high efficiency obtained these pumps are especially adapted to irrigation and general water supply.

Casing is of volute type made from close-grained cast iron.

Impeller is of open type accurately machined to a smooth finish and securely attached to the shaft.

Shaft is of best quality steel made especially for this purpose.

Stuffing box has brass water sealing ring.

Priming and Draining openings are provided at suitable positions.

Can be supplied with Bronze Case and Impeller and monel metal shaft for pumping acids, salt water or chemicals which are injurious to cast iron.

Ratings based on pumping clean cold water

Size	Dis.	Suction	Pulley Diam. Face	Shaft Size	Wgt. Lbs
1	1	1¼	4—3 3/16	¾	37
1½	1½	2	4—4¼	1 5/16	155
2	2	2½	4—4¼	1 5/16	170
2½	2½	3	6—6¼	1⅜	270
3	3	4	7—6¼	1⅜	300
4	4	6	8—8	1½	520

HEAD—CAPACITY IN U.S. GALLON PER MINUTE—SPEED AND HORSE POWER FOR STANDARD BELT DRIVEN CENTRIFUGAL PUMPS

SIZE OF PUMP		TOTAL HEAD IN FEET												
	Total Head	5	10	15	20	25	30	35	40	45	50	55	60	65
1″ Discharge	G.P.M.	18	25	25	25	25	25	25	25	25	25	25	25	25
	R.P.M.	750	1050	1240	1400	1540	1680	1800	1910	2020	2120	2220	2310	2400
1¼″ Suction	H.P.	.065	.164	.245	.33	.425	.505	.605	.695	.805	.92	1.04	1.17	1.31
1½″ Discharge	G.P.M.	52	60	68	75	75	75	75	75	75	75	75	75	75
	R.P.M.	450	560	670	770	835	895	950	1005	1060	1110	1160	1210	1255
2″ Suction	H.P.	.17	.39	.62	.87	1.09	1.31	1.53	1.74	1.96	2.18	2.45	2.68	2.9
2″ Discharge	G.P.M.	98	108	115	125	125	125	125	125	125	125	125	125	125
	R.P.M.	455	575	675	780	850	925	980	1045	1100	1150	1200	1250	1295
2½″ Suction	H.P.	.32	.61	.92	1.25	1.56	1.87	2.19	2.50	2.81	3.13	3.58	3.90	4.23
2½″ Discharge	G.P.M.	120	145	170	185	185	185	185	185	185	185	185	185	185
	R.P.M.	325	430	535	600	660	720	770	820	865	910	950	990	1025
3″ Suction	H.P.	.37	.79	1.27	1.77	2.18	2.57	3.0	3.42	3.85	4.36	4.8	5.44	5.9
3″ Discharge	G.P.M.	185	212	240	265	265	265	265	265	265	265	265	265	265
	R.P.M.	385	485	580	660	720	770	820	865	910	950	990	1030	1065
4″ Suction	H.P.	.564	1.08	1.84	2.60	3.12	3.68	4.3	4.91	5.52	6.13	6.75	7.65	8.29
4″ Discharge	G.P.M.	315	385	430	480	480	480	480	480	480	480	480	480	480
	R.P.M.	330	445	520	595	645	695	735	780	820	855	895	930	965
6″ Suction	H.P.	.856	1.89	3.04	4.37	5.27	6.31	7.24	8.28	9.32	10.35	11.8	13.1	14.45

H.P. Shown is Electric Motor or Steam—For Gas Engine Add 50%.

Standard Foot and Check Valves

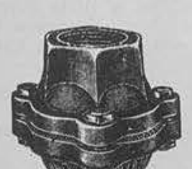


Fig. 344

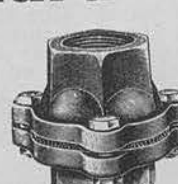


Fig. 343

Fig. 345

The cuts represent our Standard Foot and Check Valves to be used in connection with pumps or water supplies. Fig. 343 is a Check Valve to be used in the line of vertical pipe. Fig. 344 is a Foot Valve to be used at lower end of suction pipe. These valves are essential wherever cylinders cannot be placed in the water.

Figure 345 illustrates our Horizontal Check Valve for use in delivery pipes to prevent water from returning from tank.

Carried in stock in the following sizes, either japanned or galvanized:—

Fig. 344—¾, 1, 1¼, 1½, 2, 2½, 3, 3½, 4, 4½, 5, 6, 8.

Fig. 343—¾, 1, 1¼, 1½, 2.

Made in the following sizes:—

Figure 345 .... 1 1¼ 1½ 2

PUMP LEATHERS

Made from Specially Selected Time-Tanned-Oak Hide

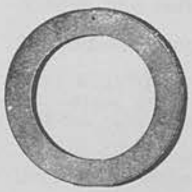


Fig. 244—Pump Leathers

No.	Suited for size of Cylinder, Inches	Outside Diam. of Leather, Inches
0	2	2⅝
1	2½	3¼
2	3	3¾
3	3½	4¼
4	4	4¾
5	4½	5¼

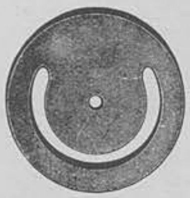


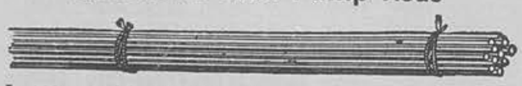
Fig. 245—Valve Leathers

No.	Suited for size of Cylinder, Inches	Outside Diam. of Leather, Inches
0	2	2¼
1	2½	3⅛
2	3	3⅝
3	3½	4 1/16
4	4	4 9/16
5	4½	5⅛

Fig. 246—Pressed Cup Leathers

Diameter of Cylinder—1", 1¼", 1½", 1¾", 2", 2¼", 2½", 2¾", 3", 3¼", 3½", 3¾", 4", 4½", 5", 6".

Galvanized Steel Pump Rods



In 100-pound bundles or less.

Plain Ends No.	Per Lb.	Size, In.	Threaded and Coupled No.	Per Lb.	Size, In.
⅜	$ .12	⅜	⅜TC	$ .15	⅜
7/16	.12	7/16	7/16TC	.15	7/16

Beaded Well and Pump Rod Couplings

For Iron Pump Rods

Carried in stock in the following sizes:—
Straight—⅜", 7/16", ½".
Reducing—⅜" x 7/16", 7/16" x ½", 7/16" x ⅝", ½" x ⅝".

Steel Drive Shoes

This shoe is made of steel casting and is stronger than the malleable shoe. It is furnished both finished and rough, the finished shoe being turned true both inside and outside.

Size Pipe Inches	List Each	Size Pipe Inches	List Each
2	3.75	3½	8.25
2½	5.00	4	9.25
3	7.00		

Above sizes regularly carried in stock, other sizes obtainable from factory.

Malleable Iron Drive Shoes

Carried in stock in 2" size only.

List each $2.00

GENERAL PUMP HINTS

When writing for information our reply will be greatly expedited if we can have before us the answers to the following questions:

(a) General idea of duty to be performed and location of pump.

(b) Number of gallons required per hour.

(c) Diameter of well and distance from ground to low-water mark.

(d) Number of feet vertical suction-pipe.

(e) Number of feet horizontal suction-pipe.

(f) Height of discharge above pump.

(g) Estimated length of discharge pipe.

(h) Dimensions of pipe already laid, if any.

(i) If for boiler-feeding, or similar duty, give pressure.

(k) If pumping chemicals or other foreign matter, give nature of substance.

(l) If a power pump, give speed of nearest shaft, also diameter and face of pulley, if in place.

(m) State whether pump is to be used continually, or only a short time each day.

(n) If electric power is to be used, state whether pump is to be driven by belt, ordinary spur gear, or worm gear.

(o) Give voltage and nature of current to be used.

(p) If alternating current, state whether single, two or three-phase, and number of cycles.

A sketch showing principal dimensions is a material assistance in selecting a pump for your service.

WHAT IS THE MATTER WITH YOUR PUMP

YOU WILL FIND IT HERE—

The first and most important is that there is water in the well. The simple fact that there was water in the well is no indication that there is water at the present time; therefore, before making complaint about your pump, assure yourself that there is water there to be pumped.

If a pump does not work properly there must be some cause.

If it loses its priming (the water runs down) the check valve is defective or some obstruction has gotten under it; it may be sand or gravel, or a little cutting broken from the pipe thread. Remedy:—Remove the valve and scrape the lower side thoroughly with a knife, being careful to remove all grit.

If it throws water on down stroke of handle only (we refer to a double-acting pump), there must be something under the lower check valve, or plunger leather is worn out.

If it throws water on upward stroke of handle only, there must be something lodged under valve in lower bucket or it may have become hardened and curled up.

If the pump discharges air bubbles with the water the suction pipe is not tightly screwed together or it may be split open.

If the handle jerks back when you pull it down, you either have the cylinder too far from the water or the supply is shut off in some manner; the suction pipe may be too small, or if a drive well the screen may be closed up.

PENBERTHY AUTOMATIC ELECTRIC SUMP AND CELLAR DRAINERS

Cut No. 397

Penberthy *Model 36*

Automatic Electric Sump Pump

Specifications

MOTOR—¼ H. P. induction type, 1725 R. P. M., 60 cycle, or 1450 R. P. M. 25 cycle, equipped with grease sealed ball thrust bearing for vertical operation. A custom built motor of exceptionally rugged construction, designed specifically for sump pump service; specially impregnated to resist moisture and free from complicated working parts, brush wear and radio interference.

ELECTRIC CURRENT CHARACTERISTICS—Alternating current 110 volts, 25 or 60 cycle. Model 36 Automatic Electric Sump Pumps are carried in stock with motors of the above current characteristics only. Motors for other current characteristics are special and, if obtainable, price will be quoted on application. All inquiries for special motors should give full details of current used. All orders must specify voltage and cycle required.

MERCURY SWITCH—(Today used almost universally for automatic controls) dependable and particularly adapted to float operation; has no mechanical contacts to wear or spark, mounted within sturdy housing, cast integral with motor end bell providing complete insulation for all wiring. Switch is controlled by extra heavy copper float sliding freely on supporting column, sensitive to slightest difference in water levels. Adjustable stop governs water level at which pump starts.

OVERLOAD PROTECTION—Built into mctor, positively protects motor in case of improper voltages, overloading or trouble of any kind.

PUMP—Top suction submerged type, equipped with strainer of ample area.

IMPELLER—Double shroud; so designed as to eliminate vertical thrust, scientifically balanced, insuring continuous and uninterrupted service.

IMPELLER SHAFT—Bronze, guided at lower end by a special alloy bearing of ample dimensions, protected from abrasive matter in sump water by built-in automatic packing.

MATERIAL—Penberthy Automatic Electric Sump Pumps are constructed of copper and bronze throughout. A heavy broad cast bronze base assures stability. Mounting holes are provided in base as an additional means of ancoring pump in sump where exceptional rigidity is required.

SUMP COVER—A sump cover is recommended to exclude ashes, coal dust and other solid materials from accumulating in sump.

Type K Electric Sump Pumps can be furnished for deeper sumps, and these pumps have larger capacity.

PIPE CONNECTIONS, CAPACITY, ETC.

Size No.	Model No.	Pipe Conn.	Max. Sump Depth Feet	Height of Pump	Approximate Capacity Gal. per Hr. Against Total Discharge Head of				Current Consumption per Hr. Watts	Size Motor H.P.	Weight Boxed Pounds	Word Code
					5 Ft.	10 Ft.	15 Ft.	20 Ft.				
0	36	1"	2'	3' 4¼"	1500	1500	1250	750	300	¼	60	Era

NOTE: Total discharge head equals the vertical distance from water level in sump to point of discharge plus all head lost by pipe friction. Capacity and elevation is slightly reduced on 25 cycle current. Model 36 Pumps can only be supplied in one length (No. 0 for 2 ft. sump).

Cut No. 380—Model "R"
Sizes 1-2

Cut No. 367—Model "L"
Sizes 3-4-5

"Penberthy"

AUTOMATIC CELLAR DRAINERS

WATER OPERATED

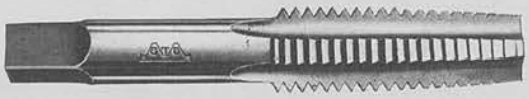
Prices and Capacities

Size No.	Price Each	Pipe Size		Gals. per hour 20 to 80 lbs. Press. 3 to 18 ft. Elev.		Dimensions	
		Supply	Disch.	Min.	Max.	Height	Diam.
1	$25.00	½"	1"	115	720	21½"	10⅜"
2	40.00	¾"	1¼"	180	1240	21½"	12⅞"
3	55.00	1"	1½"	310	1650	25⅜"	15⅛"
4	80.00	1¼"	2"	450	2400	27½"	18½"
5	110.00	1½"	2½"	600	3200	27⅝"	20½"

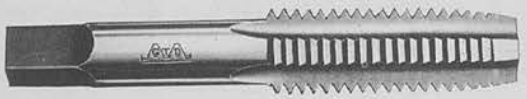
Stock Drainers require approximately 4 pounds water pressure for each foot of elevation. Special Drainers can be furnished to operate on 2 pounds per foot of elevation. Sizes 1 and 2 are designed to work on supply pressures of 10 to 100 pounds. Sizes 3, 4 and 5 on pressures not over 60 pounds. If your supply pressure is higher write us giving pressure and elevation to which water must be pumped.

Standard Hand Taps

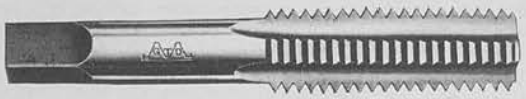
1/4 Inch and Larger



Taper



Plug



Bottoming

THESE taps are furnished with National form of thread in taper, plug or bottoming style at regular prices.

Hand taps to and including 3/8 inch have shanks full diameter of thread. Sizes and dimensions not listed are special.

Left-hand taps are special.

CARBON STEEL

Diam. of Tap Inches	Price Each	Price Per Set	Threads per Inch NC	NF	NS	Whitworth Std.	Brit. Std. Fine	Number of Flutes	Length Overall Inches
1/4	$0.45	$1.35	20	28	24, 27, 32	20	26	4	2 1/2
5/16	.50	1.50	18	24	20, 27, 32	18	22	4	2 23/32
3/8	.55	1.65	16	24	20, 27	16	20	4	2 15/16
7/16	.60	1.80	14	20	24, 27	14	18	4	3 5/32
1/2	.70	2.10	13	20	12, 24, 27	12	16	4	3 3/8
9/16	.80	2.40	12	18	27	12	16	4	3 19/32
5/8	.90	2.70	11	18	12, 27	11	14	4	3 13/16
11/16	1.05	3.15	..	..	11, 16	11	14	4	4 1/32
3/4	1.20	3.60	10	16	12, 27	10	12	4	4 1/4
7/8	1.60	4.80	9	14	12, 27	9	11	4	4 11/16
1	2.00	6.00	8	14	12, 27	8	10	4	5 1/8
1 1/8	2.25	6.75	7	12	..	7	9	4	5 7/16
1 1/4	2.60	7.80	7	12	..	7	9	4	5 3/4
1 3/8	3.00	9.00	6	12	..	6	8	4	6 1/16
1 1/2	3.50	10.50	6	12	..	6	8	4	6 3/8

HIGH SPEED STEEL

Diam. of Tap Inches	Price Each: Cut Thread	"Tru-Lede" Commercial Ground Thread	Precision Ground Thread	Threads per Inch NC	NF	NS	Number of Flutes	Length Overall Inches
1/4	$0.85	$0.85	$0.85	20	28	..	4	2 1/2
5/16	.95	.95	.95	18	24	..	4	2 23/32
3/8	1.10	1.10	1.10	16	24	..	4	2 15/16
7/16	1.30	1.30	1.30	14	20	..	4	3 5/32
1/2	1.55	1.55	1.55	13	20	..	4	3 3/8
9/16	1.85	1.85	1.85	12	18	..	4	3 19/32
5/8	2.20	2.20	2.20	11	18	..	4	3 13/16
11/16	2.60	2.60	....	..	..	11, 16	4	4 1/32
3/4	3.10	3.10	3.10	10	16	..	4	4 1/4
7/8	4.30	4.30	4.30	9	14	..	4	4 11/16
1	5.75	5.75	5.75	8	14	..	4	5 1/8
1 1/8	7.45	7.45	....	7	12	..	4	5 7/16
1 1/4	9.55	9.55	....	7	12	..	4	5 3/4
1 3/8	11.95	11.95	....	6	12	..	4	6 1/16
1 1/2	14.75	14.75	....	6	12	..	4	6 3/8

Standard Machine Screw Taps

THESE taps are furnished with National form of thread and standard number of flutes in taper, plug or bottoming style at regular prices.

When these taps are specified with an optional number of flutes as listed, they will be furnished in plug or bottoming styles only at regular prices.

CARBON STEEL

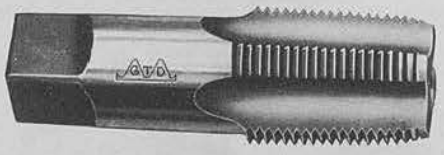
Screw Gage Number	Basic Major Diam. Inches	Price Each	Threads per Inch NC	NF	NS	Number of Flutes Standard	Optional	Length—Inches Full Thread	Overall
0	.060	$0.50	..	80	..	3	2	5/16	1 5/8
1	.073	.50	64	72	56	3	2	3/8	1 11/16
2	.086	.45	56	64	..	3	2	7/16	1 3/4
3	.099	.40	48	56	..	3	2	1/2	1 13/16
4	.112	.40	40	48	32, 36	3	2	9/16	1 7/8
5	.125	.35	40	44	..	3	2	5/8	1 15/16
6	.138	.35	32	40	36	3	2	11/16	2
8	.164	.35	32	36	40	4	2, 3	3/4	2 1/8
10	.190	.40	24	32	30	4	2, 3	7/8	2 3/8
12	.216	.45	24	28	32	4	2, 3	15/16	2 3/8
14	.242	.45	..	..	20, 24	4	..	1	2 1/2

HIGH SPEED STEEL

Screw Gage Number	Basic Major Diam. Inches	Price Each: Cut Thread	"Tru-Lede" Commercial Ground Thread	Threads per Inch NC	NF	NS	Number of Flutes Standard	Optional	Length—Inches Full Thread	Overall
4	.112	$0.70	$0.70	40	48	36	3	2	9/16	1 7/8
5	.125	.70	.70	40	44	..	3	2	5/8	1 15/16
6	.138	.70	.70	32	40	..	3	2	11/16	2
8	.164	.70	.70	32	36	..	4	2, 3	3/4	2 1/8
10	.190	.75	.75	24	32	..	4	2, 3	7/8	2 3/8
12	.216	.80	.80	24	28	..	4	2, 3	15/16	2 3/8
14	.242	.85	.85	..	..	20, 24	4	..	1	2 1/2

Taper Pipe Taps

CARBON STEEL

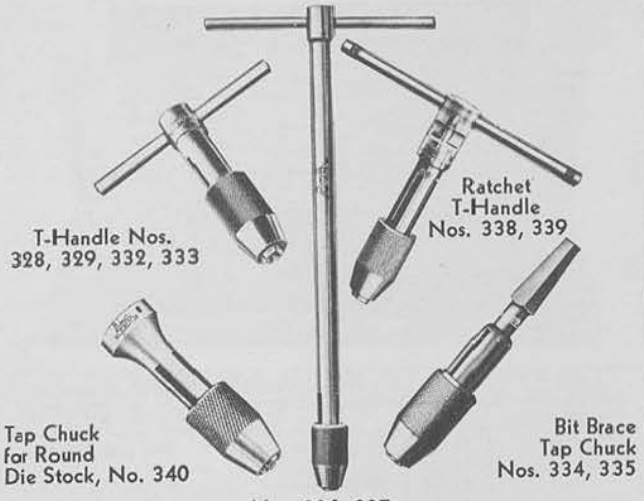


THESE taps are furnished with American or British Standard form of thread at regular prices.

American Standard regular taper pipe taps with right- or left-hand thread will be furnished at standard list prices but subject to different discounts.

Nominal Size Inches	Price Each: Amer. Std. Regular	Amer. Std. Interrupted	Brit. Std. Regular	Threads per Inch: Amer. Std.	Brit. Std.	Number of Flutes: Regular	Interrupted	Dimensions Inches: Length of Thread	Length Overall
1/8	$1.00	$1.40	$1.00	27	28	4	5	3/4	2 1/8
1/4	1.20	1.70	1.20	18	19	4	5	1 1/16	2 7/16
3/8	1.60	2.25	1.60	18	19	4	5	1 1/16	2 9/16
1/2	2.00	2.80	2.00	14	14	4	5	1 3/8	3 1/8
5/8	....	....	2.80	..	14	5	..	1 3/8	3 5/16
3/4	2.80	3.90	2.80	14	14	5	5	1 3/8	3 1/4
7/8	....	....	4.40	..	14	5	..	1 9/16	3 1/2
1	4.40	6.15	4.40	11 1/2	11	5	5	1 3/4	3 3/4
1 1/4	5.00	7.00	5.00	11 1/2	11	5	5	1 3/4	4
1 1/2	6.60	9.25	6.60	11 1/2	11	6	7	1 3/4	4 1/4
1 3/4	....	....	8.00	..	11	6	..	1 3/4	4 3/8
2	10.00	14.00	10.00	11 1/2	11	6	7	1 3/4	4 1/2
2 1/4	....	....	12.00	..	11	8	..	2 1/8	5

GTD Tap Wrenches and Chucks



GTD "T" handle tap wrenches and tap chucks are made from steel carefully selected for its toughness. The chuck jaws are all hardened and tempered, which greatly lengthens the life of the tool. The design is simple throughout, and these tools are entirely free from delicate springs, pins, etc.

Wrenches Nos. 328, 332, 338 and 339 are furnished with "Slip" handles; all other T-handle wrenches have tight or stationary handles. The "Slip" handle enables the user to completely rotate the wrench when working in close quarters where a rigid handle would not have room enough to turn.

Number	Capacity (Tap Sizes)		Length Inches	Weight	Price
	Hand—Inches	Machine Screw			
*328	1/16–9/32	0–14	2 1/2	3 oz.	$1.00
329	1/16–9/32	0–14	2 1/2	3 oz.	.75
*332	7/32–1/2	12–14	3 5/8	8 oz.	1.50
333	7/32–1/2	12–14	3 5/8	8 oz.	1.25
334	1/16–9/32	0–14	3 3/4	2 oz.	.75
335	7/32–1/2	12–14	4 7/8	6 oz.	1.25
336	1/16–9/32	0–14	8 3/4	8 oz.	1.25
337	7/32–1/2	12–14	10 5/8	1 1/4 lbs.	1.75
*338	1/16–9/32	0–14	4	6 oz.	1.50
*339	7/32–1/2	12–14	4 5/8	11 oz.	2.50
340	1/16–9/32	0–14	2 5/8	3 oz.	.75

*"Slip" handle type.

Adjustable Tap and Reamer Wrenches

Our adjustable tap wrenches are, we believe, the finest and best tap wrenches that can be bought. They are compact, simple and very strong. The jaws are made of tool steel carefully hardened and tempered. They will not break or get out of line. Wrenches No. 0 to No. 7 are solid steel drop forgings, practically unbreakable. Each tap wrench is carefully polished, and the body has a beautiful mottled finish.

The larger sizes, Nos. 7½ to 24, have malleable iron bodies and steel tubing handles. They will be found very strong and yet light enough to handle easily.

Number	Capacity (Tap Sizes)			Hand Reamers Except "Reamrite" Line Inches	Length Inches	Weight	Price
	Hand Inches	Machine Screw	Pipe				
00	1/16– 3/16	0–14	..	1/8– 17/64	5	2 oz.	$1.75
0	1/16– 1/4	0–18	..	1/8– 21/64	7	4 oz.	2.00
4	1/16– 5/16	0–18	..	1/8– 25/64	9	7 oz.	3.00
5	3/16– 1/2	7–18	..	5/32– 29/64	11	11 oz.	3.50
6	3/16– 3/4	7–18	1/8– 1/4	5/32– 41/64	15	1 lb. 10 oz.	4.00
7	1/4–1 1/8	16–18	1/8– 3/4	9/32– 29/32	19	2 lbs. 14 oz.	5.00
7½	5/16–1 3/8	..	1/8–1	3/8–1 5/32	31	4½ lbs.	6.50
8	11/16–1 1/2	.	1/4–1 1/4	17/32–1 11/32	40	8 lbs.	8.00
22	1 –2 1/2	..	3/4–2 1/2	3/4–2 1/8	54	14¼ lbs.	15.00
24	1 3/4–4	..	1 1/2–4 1/2	1 5/16–3	72	27 lbs.	25.00

Stove Bolt Taps

CARBON STEEL

No. 314

These taps are furnished with "Manufacturers Standard" form of thread in plug style only at regular prices.

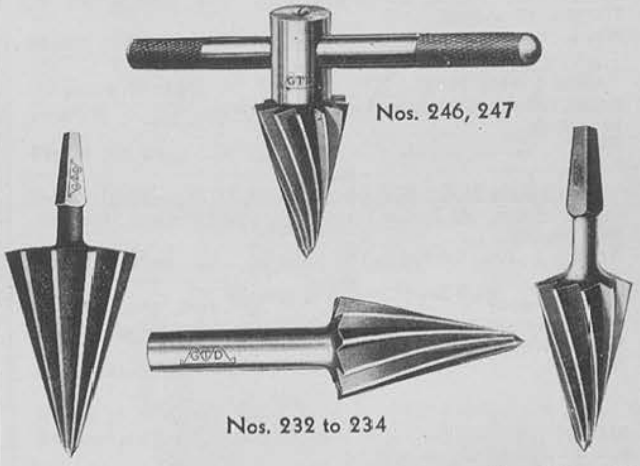
Sizes and dimensions not listed are special.

Taper and bottoming taps are special.

Left-hand taps are special.

Diam. of Tap Inches	Price Each	Threads per Inch	Number of Flutes	Dimensions—Inches			
				Diam. of Shank	Size of Square	Length of Thread	Length Overall
3/16	$0.40	24	4	.201	.151	7/8	2 3/8
1/4	.45	18	4	.255	.191	1	2 1/2
5/16	.50	18	4	.318	.238	1 1/8	2 29/32

Burring Reamers



These Burring Reamers are made of finest steel and designed especially for removing burrs, caused by cutting pipe.

They are also extensively used for countersinking and for enlarging holes in sheet metal. Great care is taken in grinding these tools to adapt them for use in a variety of materials. Straight Shank Burring Reamers are for use in electric drills.

WITH SPIRAL FLUTES

High Speed Steel

6233	**$5.00**	½" Round	1/4–1 1/4	1/4	1 15/32
6234	**10.00**	½" Round	1/4–2	1/4	2 17/64

Carbon Steel

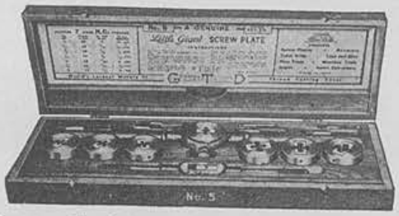
Order by this Number	Price Each	Style of Shank	Capacity Pipe Inches	Diameter, Inches	
				At Point	At Large End
232	$1.25	½" Round	1/8–1	3/16	1 1/4
233	1.50	½" Round	1/4–1 1/4	1/4	1 15/32
234	3.00	½" Round	1/4–2	1/4	2 17/64
241	1.00	Bit Brace	1/8– 1/2	3/16	47/64
242	1.25	Bit Brace	1/8–1	3/16	1 1/4
242½	1.50	Bit Brace	1/4–1 1/4	1/4	1 15/32
244	3.00	Bit Brace	1/4–2	1/4	2 17/64
246	4.00	T-Handle	1/4–2	1/4	2 17/64
247	10.00	T-Handle	1 1/2–3 1/2	1 39/64	3 5/8

WITH STRAIGHT FLUTES

Carbon Steel

1	$1.50	Bit Brace	1/4–1 1/4	1/4	1 15/32
2	3.00	Bit Brace	1/4–2	1/4	2 17/64

Little Giant Single Stock Screw Plates



Contains one hand tap and one die and collet for each cutting size. Nos. 0 and 1 contain bit brace shank guide.

No. 0

Cuts 6 sizes N. C.: $\frac{3}{16}^{24}$, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$; 2-inch diameter collet. Stock, 14½ inches long. Tap wrench. No. 5. Weight, 9½ pounds.
No. **0** .... per set **$20.00**

No. 1

Cuts 5 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$; 2-inch diameter collet. Stock, 14½ inches long. Tap wrench No. 5. Weight, 9 pounds.
No. **1** .... per set **$18.50**

No. 2

Cuts 5 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$; 2¾-inch diameter collet. Stock, 23 inches long. Tap wrench No. 6. Weight, 17 pounds.
No. **2** .... per set **$22.75**

No. 3

Cuts 4 sizes N. C.: $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}; 2¾-inch diameter collet. Stock, 26 inches long. Tap wrench No. 7. Weight, 18 pounds.
No. **3** .... per set **$26.25**

No. 4

Cuts 5 sizes N. C.: $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}; 2¾-inch diameter collet. Stock, 26 inches long. Tap wrench No. 7. Weight, 20½ pounds.
No. **4** .... per set **$29.25**

No. 5

Cuts 7 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$; 2¾-inch diameter collet. Stock, 23 inches long. Tap wrench No. 6. Weight, 20 pounds.
No. **5** .... per set **$27.50**

No. 5½

Cuts 8 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$; 2¾-inch diameter collet. Stock, 23 inches long. Tap wrench No. 6. Weight, 22 pounds.
No. **5½** .... per set **$30.75**

No. 6

Cuts 7 sizes N. C.: $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}; 2¾-inch diameter collet. Stock, 26 inches long. Tap wrench No. 7. Weight, 23 pounds.
No. **6** .... per set **$35.00**

No. 7

Cuts 9 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}; 2¾-inch diameter collet. Stock, 26 inches long. Tap wrenches Nos. 5 and 7. Weight, 27 pounds.
No. **7** .... per set **$42.00**

No. 7½

Cuts 10 sizes N. C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}; 2¾-inch diameter collet. Stock, 26 inches long. Tap wrenches Nos. 5 and 7. Weight, 29 pounds.
No. **7½** .... per set **$44.25**

No. 20

Cuts 6 sizes N. C.: $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$; 4-inch diameter collet. Stock, 41 inches long. Tap wrench No. 7½. Weight, 49½ pounds.
No. **20** .... per set **$53.50**

No. 25

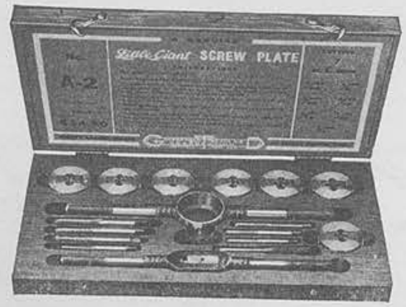
Cuts 6 sizes N. C.: $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$, 4½-inch diameter collet. Stock, 52 inches long. Tap wrench No. 8. Weight, 71 pounds.
No. **25** .... per set **$70.00**

No. 30

Cuts 4 sizes N. C.: $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$; 4½-inch diameter collet. Stock, 52 inches long. Tap wrench No. 8. Weight, 58 pounds.
No. **30** .... per set **$59.00**

Little Giant Screw Plates

Machine Screw and Small Fractional Sizes



No. A1

Cuts 5 sizes: $\frac{1}{8}^{40}$, $\frac{5}{32}^{36}$, $\frac{3}{16}^{24}$, $\frac{7}{32}^{24}$, $\frac{1}{4}^{20}$; 1¼-inch diameter collet. Stock, 7½ inches long. Tap wrench No. 0. Weight, 2½ pounds.
No. A1 .... per set **$11.50**

No. A1½

Cuts 7 sizes: $\frac{1}{16}^{64}$, $\frac{3}{32}^{50}$, $\frac{1}{8}^{40}$, $\frac{5}{32}^{35}$, $\frac{3}{16}^{24}$, $\frac{7}{32}^{24}$, $\frac{1}{4}^{20}$; 1¼-inch diameter collet. Stock, 7½ inches long. Tap wrench No. 0. Weight, 3 pounds.
No. A1½ .... per set **$14.50**

No. A10, Two Stock

Cuts 7 sizes: $\frac{1}{8}^{40}$, $\frac{5}{32}^{36}$, $\frac{3}{16}^{24}$, $\frac{7}{32}^{24}$, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$; 1¼ and 2-inch diameter collets, 1¼-inch for sizes ¼ inch and smaller, 2-inch for sizes $\frac{5}{16}$ inch and larger. Two stocks, 7½ and 14½ inches long. Adjustable tap wrench No. 4. Weight, 5½ pounds.
No. A10 .... per set **$18.25**

No. AA2

Cuts 5 machine screw sizes: 4^{36}, 6^{32}, 8^{32}, 10^{24}, 12^{24}; 1¼-inch diameter collet. Stock, 7½ inches long. Tap wrench No. 0. Weight, 2½ pounds.
No. AA2 .... per set **$11.50**

No. AA4

Cuts 7 machine screw sizes: 4^{36}, 6^{32}, 8^{32}, 10^{24}, 10^{32}, 12^{24}, $\frac{1}{4}^{20}$; 1¼-inch diameter collet. Stock, 7½ inches long. Tap wrench No. 0. Weight, 3 pounds.
No. AA4 .... per set **$14.50**

Little Giant Combination Screw Plates

These screw plates contain N.C. and N.F threads.

No. 310

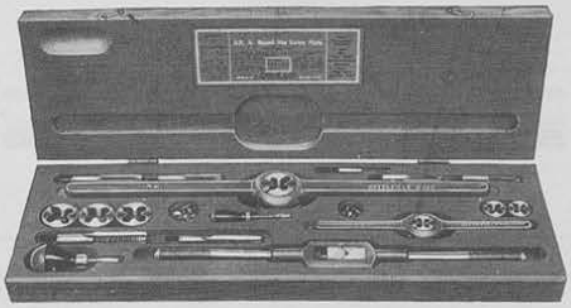
Cuts 5 sizes N.C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, and N.F.: $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$; bit brace shank and 2-inch diameter collet. Stock, 14½ inches long. Tap wrench No. 5. Weight, 14 pounds.
No. **310** .... per set **$29.25**

No. 311

Cuts 8 sizes N.C.: $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, and N.F.: $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{9}{16}^{18}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$; bit brace shank and 2 and 2¾-inch diameter collets. Two stocks, 14½ and 23 inches long. Tap wrench No. 6. Weight, 31 pounds.
No. **311** .... per set **$56.00**

"O.K." Jr. Screw Plates—"Regular"

With NC Threads



Set Number	401	401½	405	407
Thread Standard	NC	NC	NC	NC
One "O.K." Jr. Tap and one "O.K." Jr. Round Split Die for each cutting size	¼–20 5/16–18 ⅜–16 7/16–14 ½–13	¼–20 5/16–18 ⅜–16 7/16–14 ½–13 ⅝–11	¼–20 5/16–18 ⅜–16 7/16–14 ½–13 ⅝–11 ¾–10	¼–20 5/16–18 ⅜–16 7/16–14 ½–13 ⅝–11 ¾–10 ⅞–9 1–8
Dies Diameter, Inches	¼–⅜, 1 O.D. 7/16–¾, 1½ O.D.			¼–⅜, 1 O.D. 7/16–⅝, 1½ O.D. ¾–1, 2 O.D.
Die Stocks, Nos. and Lengths, Inches	No. 14, 9 No. 15, 17¾			No. 14, 9 No. 15, 17¾ No. 16, 26
Tap Wrenches, Nos.	15	16	16	15, 17
Screw Drivers	1 Small, 1 Large			1 Small, 1 Large
Net Weight, Lbs.	7½	8½	9½	20
Price, Dollars	**9.50**	**11.00**	**11.75**	**24.00**

"O.K." Jr. Screw Plates—"Regular"

Small Fractional Sizes

Set Number	BB3	BB5	BB6	BB7	C3	C5*	C7
One "O. K." Jr. Tap and one "O.K." Jr. Round Split Die for each cutting size.	1/8–40 3/16–24 ¼–20	1/8–40 5/32–36 3/16–24 7/32–24 ¼–20	7/64–48 1/8–40 5/32–36 3/16–24 7/32–24 ¼–20	7/64–48 1/8–40 9/64–40 5/32–36 3/16–24 7/32–24 ¼–20	¼–20 5/16–18 ⅜–16	¼–20 5/16–18 ⅜–16 7/16–14 ½–13	1/8–40 3/16–24 ¼–20 5/16–18 ⅜–16 7/16–14 ½–13
Dies Diam., Inches	13/16	13/16	13/16	13/16	1	1	1
Stock Nos. and Lengths, Inches	751 6¼	751 6¼	751 6¼	751 6¼	752 9	752 9	752 9
Tap Wrenches, Nos.	3	3	3	3	3	3	3
Net Weight, Lbs.	1⅜	1¾	1⅞	2	2¼	2½	2¾
Price, Dollars	**2.50**	**4.00**	**4.50**	**5.00**	**3.50**	**5.50**	**6.50**

"O.K." Jr. Automobile Screw Plate "Regular" No. 3100

Set Number	3100		
Thread Standard	NC	NF	Pipe
One "O.K." Jr. Tap and one "O.K." Jr. Round Split Die for each cutting size	¼–20 5/16–18 ⅜–16 7/16–14 ½–13	¼–28 5/16–24 ⅜–24 7/16–20 ½–20	⅛
Dies Diam., Inches	1		
Stock No. and Length, Inches	No. 752, 9" Long Also Bit Brace Die Holder		
Tap Wrench, No.	No. 3		
Screw Driver	One Small		
Net Weight, Lbs.	4		
Price, Dollars	**7.50**		

"O.K." Jr. Screw Plates—"de Luxe"

For Garage and General Repair Work

Set Number	3100 "de Luxe"			3500 "de Luxe"			
Thread Standard	NC	NF	Pipe	MS	NC	NF	Pipe
One "O.K." Jr. Tap and one "O.K." Jr. Round Split Die for each cutting size	¼–20 5/16–18 ⅜–16 7/16–14 ½–13	¼–28 5/16–24 ⅜–24 7/16–20 ½–20	⅛	4–36 6–32 8–32 10–24 10–32 12–24	¼–20 5/16–18 ⅜–16 7/16–14 ½–13	¼–28 5/16–24 ⅜–24 7/16–20 ½–20 ⅝–18 ¾–16	⅛ ¾
Dies Diam., Inches	All Sizes 1 O.D.			4–12, 13/16 O.D. ¼–7/16 and ⅛ Pipe, 1 O.D. ½–¾ and ⅜ Pipe, 1½ O.D.			
Stock Nos. and Lengths, Inches	No. 14, 9 long; also Bit Brace Die Holder			No. 13, 6¼; No. 14, 9; No. 15, 17¾; also Hex. Die Nut and Socket Wrench Holder for 13/16 and 1 O.D. Dies, respectively			
Tap Wrenches Nos.	No. 15			No. 00, No. 16, No. 336			
Screw Pitch Gage	10 Pitch			10 Pitch			
Screw Drivers	1 Small			1 Small, 1 Large			
Net Weight, Lbs.	8¾			16½			
Price, Dollars	**12.50**			**35.00**			

Little Giant Adjustable Dies

THESE are the dies used in "*Little Giant*" Screw Plates.

NATIONAL Coarse threads furnished unless otherwise specified.

In ordering dies, specify outside diameter of collet, and the cutting size and number of threads per inch.

Machine Screw Sizes

Screw Gage Number	Diam. Collet Price Dies	Number of Threads to Inch		
	1¼ Inch	NC	NF	NS
4	.75	40	48	32, 36
5	.75	40	44	36
6	.75	32	40	36
8	.75	32	36	30, 40
10	.75	24	32	28, 30
12	.75	24	28	32

Fractional Sizes

Cutting Size Inches	Diam. Collets Price Die, Each Size		Number of Threads to Inch				
	1¼ Inch	*2, 2¾ 4, 4½ Inch	NC	NF	NS	Whitworth Std.	British Std. Fine
1/16	$0.75	....	..	..	64	60	..
3/32	.75	....	..	...	48, 50	48	..
1/8	.75	....	..	..	40	40	..
5/32	.75	....	..	..	32, 36	32	..
3/16	.75	$1.00	..	..	24, 32	24	..
7/32	.75	1.00	..	..	24, 32	24	..
1/4	.75	1.00	20	28	24, 27, 32	20	26
5/16	....	1.00	18	24	20, 27, 32	18	22
3/8	....	1.25	16	24	20, 27	16	20
7/16	....	1.25	14	20	24, 27	14	18
1/2	....	1.50	13	20	12, 24, 27	12	16
9/16	....	1.50	12	18	27	12	16
5/8	....	1.75	11	18	12, 27	11	14
11/16	....	1.75	..	..	11, 16	11	14
3/4	....	2.00	10	16	12, 27	10	12
13/16	....	2.75	..	..	10	10	12
7/8	....	2.75	9	14	12, 18, 27	9	11
15/16	....	2.75	..	..	9	9	..
1	....	2.75	8	14	12, 27	8	10
1 1/8	....	4.00	7	12	..	7	9
1 1/4	....	4.00	7	12	..	7	9
1 3/8	....	5.00	6	12	..	6	8
1 1/2	....	5.00	6	12	..	6	8

Little Giant Collets

Cap (Phantom) View

Guide

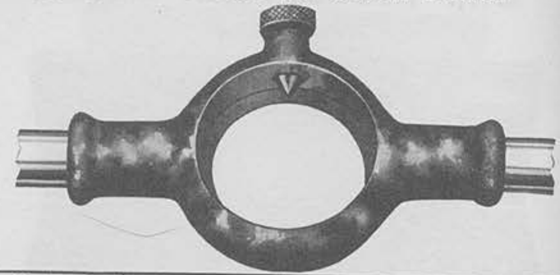
Collet, complete

In ordering extra collets or guides, it is only necessary to give us the outside diameter of the collet and the cutting size of the die for which it is required.

Number of Collet	Diameter of Collet Inches	Cutting Size of Dies Inches	Price Each		
			Cap	Guide	Complete
A1	1¼	{ 0–16 / 1/16–3/32 }	$0.35	$0.20**	$0.55
1	2	3/16–1/2	.50	*.30	.80
5	2¾	3/16–1	.80	.50	1.30
20	4	5/8–1¼	1.50	.75	2.25
25	4½	13/16–1½	2.00	1.00	3.00

*Bit Brace Shank Guide for 2" Diameter Cap $0.50, and for 2¾" Diameter Cap $0.75.
**A1 Guides not squared.

Little Giant Stocks for Screw Plates



Number of Stock	Collet Diameter Inches	Length of Stock Inches	Price Each
A1	1¼	7½	$1.25
1	2	14½	2.50
5	2¾	23	3,50
7	2¾	26	3.50
9	2¾	29	3.50

"O.K." Jr. Adjustable Dies

"O. K." Jr. Adjustable Round Split Dies are held in the stock by three tapered screws, which are also used to effect the proper adjustment.

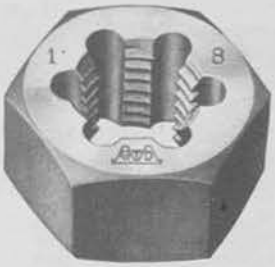
Cutting Size Inches	Number of Threads to Inch			Outside Diameter. Price Each			
	NC	NF	NS	13/16"	1"	1½"	2"
4	40	48	36	$0.60	..	..	..
6	32	40	..	.60	..	..	..
8	32	..	36	.60	..	..	..
10	24	32	28	.60	..	..	..
12	24	..	28	.60	..	..	..
7/64	..	..	48	.60	..	..	..
1/8	..	..	40	.60	$0.75	..	..
9/64	..	..	40	.60	..	..	..
5/32	..	..	36	.60	..	..	..
3/16	..	..	24	.60	.75	..	..
7/32	..	..	24	.60	..	..	..
1/4	20	28		.60	.75	$1.25	..
5/16	18	24	..	..	.75	1.25	..
3/8	16	24	..	..	.75	1.25	..
7/16	14	20	..	..	.75	1.25	..
1/2	13	20	..	..	.75	1.25	..
9/16	12	18	..	..	..	1.25	..
5/8	11	18	..	..	..	1.25	..
3/4	10	16	..	..	..	1.50	$2.00
7/8	9	14	..	..	..	..	2.00
1	8	14	..	..	..	..	2.25
1/8 Pipe	NPT	..	..	..	.75	1.25	..
1/4 Pipe	NPT	..	..	..	..	1.25	..
3/8 Pipe	NPT	..	..	..	..	1.50	..

"O.K." Jr. Adjustable Guide Stocks

"O. K." Jr. Adjustable Guide Stocks are sturdily built, well balanced and handsomely finished in red. They are for holding adjustable round split dies in 13/16-inch to 2 inch outside diameters.

Number	Diam. of Dies Inches	Length Inches	Weight	Price Each
13	13/16	6¼	3 oz.	$1.00
14	1	9	8 oz.	1.25
15	1½	17¾	1¼ lb.	2.00
16	2	26	1⅞ lb.	2.50

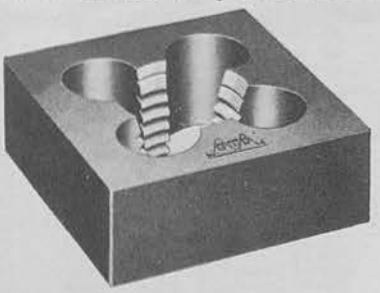
No. 377 Solid Hexagon Re-Threading Dies



THESE dies are used only for repair work, for dressing over bruised or rusty threads. They have approximately one thread chamfer on both front and rear face.

Size Inches	Price Each	Number of Threads to Inch				Size of Die Inches	
		NC	NF	NS	Whitw'th Std.	Across Flats	Thickness
1/4	$0.70	20	28	..	20	19/32	1/4
5/16	.80	18	24	..	18	11/16	5/16
3/8	.90	16	24	..	16	25/32	3/8
7/16	1.00	14	20	..	14	7/8	7/16
1/2	1.10	13	20	..	12	1 1/16	1/2
9/16	1.20	12	18	..	12	1 1/16	1/2
5/8	1.40	11	18	..	11	1 1/4	5/8
11/16	1.60	..	..	11, 16	11	1 7/16	3/4
3/4	1.80	10	16	..	10	1 7/16	3/4
7/8	2.10	9	14	18	9	1 5/8	7/8
1	2.40	8	14	..	8	1 13/16	1
1 1/8	2.80	7	12	..	7	2	1
1 1/4	3.20	7	12	..	7	2 3/16	1
1 3/8	3.60	6	12	..	6	2 3/8	1
1 1/2	4.00	6	12	..	6	2 9/16	1

No. 275 Solid Square Bolt Dies



THESE dies are furnished with National form of thread.

Cutting Size Inches	Price Each	Threads per Inch		Dimensions—Inches	
		NC	NS	Size of Square	Thickness
1/4	$1.80	20	....	2 1/2	1/2
5/16	1.80	18	....	2 1/2	1/2
3/8	1.80	16	....	2 1/2	1/2
7/16	1.80	14	....	2 1/2	1/2
1/2	1.80	13	....	2 1/2	3/4
9/16	1.90	12	....	2 1/2	3/4
5/8	2.00	11	....	2 1/2	3/4
3/4	2.20	10	....	2 1/2	3/4
7/8	2.40	9	....	2 1/2	3/4
1	2.70	8	....	2 1/2	1
1 1/8	3.00	7	....	2 1/2	1
1 1/4	3.30	7	....	2 1/2	1
1 3/8	3.60	6	....	2 1/2	1
1 1/2	3.90	6	....	3	1
1 5/8	4.20	..	5 1/2	3	1
1 3/4	5.40	5	....	3	1 1/4
1 7/8	6.50	..	5	3 1/2	1 1/2
2	7.50	4 1/2	....	3 3/4	2

Little Giant Screw Extractors

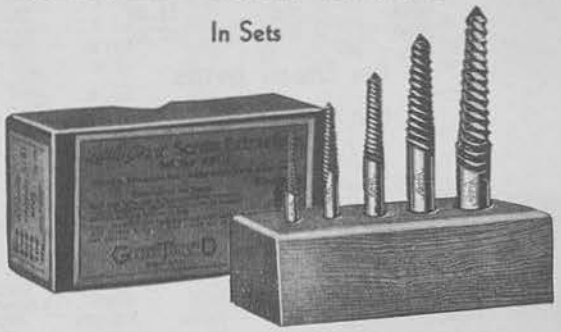
THE "*Little Giant*" Screw Extractor will remove broken screws, studs, pipe fittings, etc., quickly and easily.

Due to its unique design, the "*Little Giant*" will "feed" itself into a hole drilled in the screw—instead of having to be "hammered in." It takes a quick and positive grip, which will "start" the most deeply imbedded screw or stud, and turn it out on its own threads.

Extractor No.	List Price	Diam. Small End Inches	Diam. Large End Inches	Length of Thread Inches	Length Overall Inches	Size Drill to Use Inches	For Screws and Bolts, Sizes Inches	For Pipe Sizes In.
801	$0.55	1/16	1/8	1/2	2	5/64	3/16- 1/4	
802	.60	5/32	13/64	7/8	2 3/8	7/64	1/4- 5/16	
803	.65	1/8	1/4	1	2 11/16	9/32	5/16- 7/16	
804	.75	3/16	11/32	1 1/4	3	1/4	7/16- 9/16	
805	.85	1/4	7/16	1 1/2	3 3/8	17/64	9/16- 3/4	1/8
805 1/4	.90	11/32	17/32	1 1/2	3 3/8	25/64	11/16- 15/16	1/4
806	1.00	3/8	19/32	1 3/4	3 3/4	13/32	3/4-1	
806 3/8	1.20	15/32	11/16	1 11/16	3 3/4	31/64	15/16-1 1/8	3/8
807	1.35	1/2	23/32	2 1/4	4 1/8	17/32	1 -1 3/8	
807 1/2	1.60	19/32	7/8	2 1/4	4 1/8	39/64	1 1/8-1 1/2	1/2
808	1.85	3/4	1 1/32	2 1/4	4 3/8	19/32	1 3/8-1 3/4	3/4
809	2.65	1	1 9/32	2 1/4	4 3/8	1 1/16	1 3/4-2 1/8	1

Little Giant Screw Extractors

In Sets



SET No. 1815

CONTAINS the five smallest "*Little Giant*" Screw Extractors. Its range is sufficient to take care of most broken screws and studs that have to be removed in the garage and machine shop.

When so specified set No. 1815 can be furnished in a durable canvas roll.

Set No. 1815 contains "*Little Giant*" Screw Extractors Nos. 801, 802, 803, 804, 805 ..... List Price $3.00

SET No. 1816

Contains six "*Little Giant*" Screw Extractors same as set No. 1815, with the addition of No. 806, giving range of sizes that will take care of all ordinary garage and machine shop work.

Set No. 1816 contains "*Little Giant*" Screw Extractors Nos. 801, 802, 803, 804, 805, 806 ..... List Price $4.00

SET No. 1817

Contains the three sizes most commonly used in the average machine shop.

Set No. 1817 contains "*Little Giant*" Screw Extractors Nos. 804, 805, 806 ..... List Price $2.35

SET No. 1818

Contains four "*Little Giant*" Screw Extractors for removing large broken bolts, set screws, etc. Particularly adapted for use in railroad shops, on structural steel jobs, etc.

Set No. 1818 contains "*Little Giant*" Screw Extractors Nos. 806, 807, 808, 809 ..... List Price $6.65

Straight Shank Twist Drills

Carbon Steel — Jobbers' — High Speed Steel

Diam. Inches	Decimal Equivalent	Length Over All Inches	Carbon Steel per Doz.	High Speed Steel per Doz.
1/64	.0156	7/8	$1.50	$4.25
1/32	.0312	1 1/2	1.50	3.50
3/64	.0469	1 3/4	1.55	2.40
1/16	.0625	2 1/2	1.60	3.00
5/64	.0781	2 5/8	1.65	3.10
3/32	.0937	2 3/4	1.70	3.20
7/64	.1094	2 7/8	1.75	3.40
1/8	.1250	3	1.80	3.60
9/64	.1406	3 1/8	1.85	3.90
5/32	.1562	3 1/4	1.90	4.20
11/64	.1719	3 3/8	2.00	4.50
3/16	.1875	3 1/2	2.25	4.85
13/64	.2031	3 5/8	2.50	5.25
7/32	.2187	3 3/4	2.75	5.75
15/64	.2344	3 7/8	3.00	6.25
1/4	.2500	4	3.25	6.75
17/64	.2656	4 1/8	3.50	7.50
9/32	.2812	4 1/4	3.80	8.25
19/64	.2969	4 3/8	4.00	9.00
5/16	.3125	4 1/2	4.35	9.75
21/64	.3281	4 5/8	4.70	10.75
11/32	.3437	4 3/4	5.05	11.75
23/64	.3594	4 7/8	5.50	12.75
3/8	.3750	5	6.00	13.75
25/64	.3906	5 1/8	6.50	15.00
13/32	.4062	5 1/4	7.00	16.25
27/64	.4219	5 3/8	7.75	17.50
7/16	.4375	5 1/2	8.50	18.75
29/64	.4531	5 5/8	9.25	20.00
15/32	.4687	5 3/4	10.00	21.25
31/64	.4844	5 7/8	11.00	22.75
1/2	.5000	6	12.00	24.25

Taper Square Shank Drills

Long Series

Carbon Steel — High Speed Steel

No. 1 Shank

No. 2 shanks are 1/2 inch by 3/4 inch by 1 3/4 inches long.
No. 1 shanks are 3/8 inch by 5/8 inch by 1 1/2 inches long.
Unless otherwise specified, No. 1 shank will be furnished.

Diam. Inches	Carbon Steel Each	High Speed Steel Each	Length Overall Inches	Diam. Inches	Carbon Steel Each	High Speed Steel Each	Length Overal Inches
1/8	$.90	....	4 1/2	27/32	$1.90	$4.20	7 1/4
5/32	.95	....	4 5/8	7/8	2.05	4.50	7 1/2
3/16	.95	....	4 7/8	29/32	2.20	4.70	7 3/4
7/32	1.00	....	5	15/16	2.30	5.00	8
1/4	1.00	....	5	31/32	2.40	5.25	8 1/4
9/32	1.05	....	5	1	2.55	5.50	8 1/2
5/16	1.10	....	5	1 1/32	2.70	5.75	8 3/4
11/32	1.15	....	5	1 1/16	2.85	6.00	9
3/8	1.20	....	6	1 3/32	3.00	6.30	9
13/32	1.25	....	6 1/4	1 1/8	3.10	6.70	9
7/16	1.25	....	6 1/4	1 5/32	3.25	7.00	9
15/32	1.30	....	6 1/4	1 3/16	3.35	7.30	9
1/2	1.30	$2.90	6 1/2	1 7/32	3.50	7.60	9
17/32	1.35	2.95	6 1/2	1 1/4	3.65	7.90	9
9/16	1.35	3.00	6 1/2	1 9/32	3.75	8.25	9
19/32	1.40	3.10	6 1/2	1 5/16	3.90	8.60	9
5/8	1.40	3.20	6 1/2	1 11/32	4.05	9.00	9
21/32	1.45	3.30	6 1/2	1 3/8	4.20	9.40	9
11/16	1.45	3.40	6 1/2	1 13/32	4.35	9.80	9
23/32	1.50	3.50	6 1/2	1 7/16	4.50	10.20	9
3/4	1.55	3.65	6 1/2	1 15/32	4.65	10.60	9
25/32	1.65	3.80	6 3/4	1 1/2	4.80	11.00	9
13/16	1.75	4.00	7	.....	....	.....	.

Silver and Deming Drills

Style No. 1

Style No. 2

Shanks 1/2 inch diameter and 2 1/4 inches long

Diam. Inches	Carbon Steel Each	High Speed Steel Each	Length Overall Inches	Diam. Inches	Carbon Steel Each	High Speed Steel Each	Length Overall Inches
1/8	$ .45	$1.40	4 7/8	23/32	$1.60	$5.25	6
5/32	.45	1.50	5 1/8	3/4	1.70	5.50	6
3/16	.50	1.60	5 1/2	25/32	1.80	5.75	6
7/32	.55	1.75	5 1/4	13/16	1.90	6.00	6
1/4	.60	1.90	6	27/32	2.00	6.25	6
9/32	.65	2.05	6	7/8	2.10	6.50	6
5/16	.70	2.20	6	29/32	2.20	6.75	6
11/32	.75	2.35	6	15/16	2.30	7.25	6
3/8	.80	2.50	6	31/32	2.40	7.75	6
13/32	.85	2.75	6	1	2.50	8.50	6
7/16	.90	3.00	6	1 1/32	2.60	....	6
15/32	.95	3.25	6	1 1/16	2.70	....	6
1/2	1.00	3.50	6	1 1/8	2.90	....	6
17/32	1.05	3.75	6	1 3/16	3.10	....	6
9/16	1.10	4.00	6	1 1/4	3.30	....	6
19/32	1.20	4.25	6	1 5/16	3.60	.....	6
5/8	1.30	4.50	6	1 3/8	3.90	....	6
21/32	1.40	4.75	6	1 7/16	4.20	....	6
11/16	1.50	5.00	6	1 1/2	4.50	....	6

Please specify style of shank desired when ordering.
Style No. 1 has round shank, not flatted.
Style No. 2 has flatted shank.

Bit Stock Drills

For Metal or Wood

Carbon Steel

Diam. Inches	Per Dozen	Length Overall Inches	Diam. Inches	Per Dozen	Length Overall Inches
1/16	$4.00	3 3/8	5/8	$18.00	7 1/2
3/32	4.00	3 5/8	21/32	19.50	7 1/2
1/8	4.00	3 7/8	11/16	21.00	7 1/2
5/32	4.00	4 1/8	23/32	22.50	7 1/2
3/16	4.00	4 3/8	3/4	24.00	7 1/2
7/32	4.50	4 5/8	25/32	25.50	7 1/2
1/4	5.00	5 1/8	13/16	27.00	7 1/2
9/32	6.00	5 1/4	27/32	28.50	7 1/2
5/16	7.00	5 1/2	7/8	30.00	7 1/2
11/32	8.00	5 3/4	29/32	31.50	7 1/2
3/8	8.50	5 7/8	15/16	33.00	7 1/2
13/32	9.25	6	31/32	34.50	7 1/2
7/16	10.50	6 1/4	1	36.00	7 1/2
15/32	11.75	6 5/8	1 1/16	39.00	7 1/2
1/2	13.00	6 3/4	1 1/8	42.00	7 1/2
17/32	14.25	7 1/2	1 3/16	45.00	7 1/2
9/16	15.50	7 1/2	1 1/4	48.00	7 1/2
19/32	16.75	7 1/2	.....	.....	...

PATRONIZE THE JOBBER

The Jobber carries your maintenance supplies for you, thus enabling you to keep down your investment in this kind of material.
You need the Jobber's Service.
He needs your orders.

High Speed Steel Taper Shank Twist Drills

Diam. In.	Each	Length Overall In.	Morse Taper Shank No.	Diam. In.	Each	Length Overall In.	Morse Taper Shank No.
1/8	$1.00	5 1/8	1	1 15/64	$18.00	13 1/2	4
9/64	1.10	5 3/8	1	1 1/4	18.00	13 1/2	4
5/32	1.10	5 3/8	1	1 17/64	20.00	14 1/8	4
11/64	1.25	5 3/4	1	1 9/32	20.00	14 1/8	4
3/16	1.25	5 3/4	1	1 19/64	20.75	14 1/4	4
13/64	1.35	6	1	1 5/16	20.75	14 1/4	4
7/32	1.35	6	1	1 21/64	21.50	14 3/8	4
15/64	1.40	6 1/8	1	1 11/32	21.50	14 3/8	4
1/4	1.40	6 1/8	1	1 23/64	22.25	14 1/2	4
17/64	1.50	6 1/4	1	1 3/8	22.25	14 1/2	4
9/32	1.50	6 1/4	1	1 25/64	23.00	14 5/8	4
19/64	1.60	6 3/8	1	1 13/32	23.00	14 5/8	4
5/16	1.60	6 3/8	1	1 27/64	23.75	14 3/4	4
21/64	1.70	6 1/2	1	1 7/16	23.75	14 3/4	4
11/32	1.70	6 1/2	1	1 29/64	24.50	14 7/8	4
23/64	1.90	6 3/4	1	1 15/32	24.50	14 7/8	4
3/8	1.90	6 3/4	1	1 31/64	25.25	15	4
25/64	2.10	7	1	1 1/2	25.25	15	4
13/32	2.10	7	1	1 33/64	28.75	16 3/8	5
27/64	2.30	7 1/4	1	1 17/32	28.75	16 3/8	5
7/16	2.30	7 1/4	1	1 35/64	30.75	16 5/8	5
29/64	2.50	7 1/2	1	1 9/16	30.75	16 5/8	5
15/32	2.50	7 1/2	1	1 37/64	32.75	16 7/8	5
31/64	2.95	8 1/4	2	1 19/32	32.75	16 7/8	5
1/2	2.95	8 1/4	2	1 39/64	34.00	17	5
33/64	3.25	8 1/2	2	1 5/8	34.00	17	5
17/32	3.25	8 1/2	2	1 41/64	35.25	17 1/8	5
35/64	3.75	8 3/4	2	1 21/32	35.25	17 1/8	5
9/16	3.75	8 3/4	2	1 43/64	36.50	17 1/8	5
37/64	4.00	8 3/4	2	1 11/16	36.50	17 1/8	5
19/32	4.00	8 3/4	2	1 45/64	37.75	17 1/8	5
39/64	4.25	8 3/4	2	1 23/32	37.75	17 1/8	5
5/8	4.25	8 3/4	2	1 47/64	39.00	17 1/8	5
41/64	4.75	9	2	1 3/4	39.00	17 1/8	5
21/32	4.75	9	2	1 25/32	40.25	17 1/8	5
43/64	5.25	9 1/4	2	1 13/16	41.50	17 1/8	5
11/16	5.25	9 1/4	2	1 27/32	42.75	17 1/8	5
45/64	5.75	9 1/2	2	1 7/8	45.00	17 3/8	5
23/32	5.75	9 1/2	2	1 29/32	46.25	17 3/8	5
47/64	6.25	9 3/4	2	1 15/16	47.50	17 3/8	5
3/4	6.25	9 3/4	2	1 31/32	48.75	17 3/8	5
49/64	6.50	9 7/8	2	2	50.00	17 3/8	5
25/32	6.50	9 7/8	2	2 1/32	51.75	17 3/8	5
51/64	7.25	10 3/4	3	2 1/16	53.50	17 3/8	5
13/16	7.25	10 3/4	3	2 3/32	55.25	17 3/8	5
53/64	7.65	10 3/4	3	2 1/8	57.00	17 3/8	5
27/32	7.65	10 3/4	3	2 5/32	58.75	17 3/8	5
55/64	8.05	10 3/4	3	2 3/16	60.50	17 3/8	5
7/8	8.05	10 3/4	3	2 7/32	62.25	17 3/8	5
57/64	8.45	10 3/4	3	2 1/4	64.00	17 3/8	5
29/32	8.45	10 3/4	3	2 5/16	67.50	17 3/8	5
59/64	8.85	10 3/4	3	2 3/8	71.00	17 3/8	5
15/16	8.85	10 3/4	3	2 7/16	87.50	18 3/4	5
61/64	9.65	11	3	2 1/2	91.00	18 3/4	5
31/32	9.65	11	3	2 9/16	100.00	19 1/2	5
63/64	10.25	11	3	2 5/8	105.00	19 1/2	5
1	10.25	11	3	2 11/16	115.50	20 3/8	5
1 1/64	11.00	11 1/8	3	2 3/4	120.50	20 3/8	5
1 1/32	11.00	11 1/8	3	2 13/16	129.50	21 1/8	5
1 3/64	11.75	11 1/4	3	2 7/8	135.00	21 1/8	5
1 1/16	11.75	11 1/4	3	2 15/16	142.50	21 3/4	5
1 5/64	13.25	12 1/2	4	3	150.00	21 3/4	5
1 3/32	13.25	12 1/2	4	3 1/16	160.00	22	*5
1 7/64	14.25	12 3/4	4	3 1/8	170.00	22	*5
1 1/8	14.25	12 3/4	4	3 3/16	180.00	22	*5
1 9/64	15.00	12 7/8	4	3 1/4	195.00	23	*5
1 5/32	15.00	12 7/8	4	3 5/16	210.00	23	*5
1 11/64	15.75	13	4	3 3/8	225.00	23	*5
1 3/16	15.75	13	4	3 7/16	240.00	23	*5
1 13/64	16.50	13 1/8	4	3 1/2	260.00	24	*5
1 7/32	16.50	13 1/8	4	...	.....	..	..

*Can also be furnished with No. 6 taper shank.

Carbon Steel Taper Shank Twist Drills

Diam. In.	Each	Length Overall In.	Morse Taper Shank No.	Diam. In.	Each	Length Overall In.	Morse Taper Shank No.
1/8	$.45	5 1/8	1	1 11/64	$5.00	12	3
9/64	.45	5 3/8	1	1 3/16	5.00	12	3
5/32	.45	5 3/8	1	1 13/64	5.25	12 1/8	3
11/64	.50	5 3/4	1	1 7/32	5.25	12 1/8	3
3/16	.50	5 3/4	1	1 15/64	5.50	12 1/2	3
13/64	.55	6	1	1 1/4	5.50	12 1/2	3
7/32	.55	6	1	1 17/64	5.75	14 1/8	4
15/64	.60	6 1/8	1	1 9/32	5.75	14 1/8	4
1/4	.60	6 1/8	1	1 19/64	6.00	14 1/4	4
17/64	.65	6 1/4	1	1 5/16	6.00	14 1/4	4
9/32	.65	6 1/4	1	1 21/64	6.25	14 3/8	4
19/64	.70	6 3/8	1	1 11/32	6.25	14 3/8	4
5/16	.70	6 3/8	1	1 23/64	6.50	14 1/2	4
21/64	.75	6 1/2	1	1 3/8	6.50	14 1/2	4
11/32	.75	6 1/2	1	1 25/64	7.00	14 5/8	4
23/64	.80	6 3/4	1	1 13/32	7.00	14 5/8	4
3/8	.80	6 3/4	1	1 27/64	7.50	14 3/4	4
25/64	.90	7	1	1 7/16	7.50	14 3/4	4
13/32	.90	7	1	1 29/64	8.00	14 7/8	4
27/64	1.00	7 1/4	1	1 15/32	8.00	14 7/8	4
7/16	1.00	7 1/4	1	1 31/64	8.50	15	4
29/64	1.10	7 1/2	1	1 1/2	8.50	15	4
15/32	1.10	7 1/2	1	1 33/64	9.00	15	4
31/64	1.20	7 3/4	1	1 17/32	9.00	15	4
1/2	1.20	7 3/4	1	1 35/64	9.50	15 1/4	4
33/64	1.30	8	1	1 9/16	9.50	15 1/4	4
17/32	1.30	8	1	1 37/64	10.00	15 1/2	4
35/64	1.40	8 1/4	1	1 19/32	10.00	15 1/2	4
9/16	1.40	8 1/4	1	1 39/64	10.50	15 5/8	4
37/64	1.50	8 3/4	2	1 5/8	10.50	15 5/8	4
19/32	1.50	8 3/4	2	1 41/64	11.00	15 3/4	4
39/64	1.60	8 3/4	2	1 21/32	11.00	15 3/4	4
5/8	1.60	8 3/4	2	1 43/64	11.50	15 3/4	4
41/64	1.70	9	2	1 11/16	11.50	15 3/4	4
21/32	1.70	9	2	1 45/64	12.00	15 3/4	4
43/64	1.80	9 1/4	2	1 23/32	12.00	15 3/4	4
11/16	1.80	9 1/4	2	1 47/64	12.50	16 1/4	4
45/64	1.90	9 1/2	2	1 3/4	12.50	16 1/4	4
23/32	1.90	9 1/2	2	1 25/32	13.25	16 1/4	4
47/64	2.00	9 3/4	2	1 13/16	14.00	16 1/4	4
3/4	2.00	9 3/4	2	1 27/32	14.75	16 1/4	4
49/64	2.10	9 7/8	2	1 7/8	15.50	16 1/2	4
25/32	2.10	9 7/8	2	1 29/32	16.25	16 1/2	4
51/64	2.20	10	2	1 15/16	17.00	16 5/8	4
13/16	2.20	10	2	1 31/32	17.75	16 5/8	4
53/64	2.40	10	2	2	18.50	16 5/8	4
27/32	2.40	10	2	2 1/32	19.25	17 3/8	5
55/64	2.60	10	2	2 1/16	20.00	17 3/8	5
7/8	2.60	10	2	2 3/32	20.75	17 3/8	5
57/64	2.80	10	2	2 1/8	21.50	17 3/8	5
29/32	2.80	10	2	2 5/32	22.25	17 3/8	5
59/64	3.00	10 3/4	3	2 3/16	23.00	17 3/8	5
15/16	3.00	10 3/4	3	2 7/32	23.75	17 3/8	5
61/64	3.25	11	3	2 1/4	24.50	17 3/8	5
31/32	3.25	11	3	2 5/16	26.00	17 3/8	5
63/64	3.50	11	3	2 3/8	27.50	17 3/8	5
1	3.50	11	3	2 7/16	29.00	18 3/4	5
1 1/64	3.75	11 1/8	3	2 1/2	30.50	18 3/4	5
1 1/32	3.75	11 1/8	3	2 9/16	32.00	19 1/2	5
1 3/64	4.00	11 1/4	3	2 5/8	34.00	19 1/2	5
1 1/16	4.00	11 1/4	3	2 11/16	36.00	20 3/8	5
1 5/64	4.25	11 1/2	3	2 3/4	38.00	20 3/8	5
1 3/32	4.25	11 1/2	3	2 13/16	40.50	21 1/8	5
1 7/64	4.50	11 3/4	3	2 7/8	43.00	21 1/8	5
1 1/8	4.50	11 3/4	3	2 15/16	45.50	21 3/4	5
1 9/64	4.75	11 7/8	3	3	48.00	21 3/4	5
1 5/32	4.75	11 7/8	3	...	.....	....	.

Straight Shank Twist Drills

Taper Length

Carbon Steel **High Speed Steel**

Diam. Inches	Decimal Equivalent	Length Over All Inches	Price, Each — Carbon Steel	Price, Each — High Speed Steel
1/8	.1250	5 1/8	$.45	$1.00
9/64	.1406	5 3/8	.45	1.10
5/32	.1562	5 3/8	.45	1.10
11/64	.1719	5 3/4	.50	1.25
3/16	.1875	5 3/4	.50	1.25
13/64	.2031	6	.55	1.35
7/32	.2187	6	.55	1.35
15/64	.2344	6 1/8	.60	1.40
1/4	.2500	6 1/8	.60	1.40
17/64	.2656	6 1/4	.65	1.50
9/32	.2812	6 1/4	.65	1.50
19/64	.2969	6 3/8	.70	1.60
5/16	.3125	6 3/8	.70	1.60
21/64	.3281	6 1/2	.75	1.70
11/32	.3437	6 1/2	.75	1.70
23/64	.3594	6 3/4	.80	1.90
3/8	.3750	6 3/4	.80	1.90
25/64	.3906	7	.90	2.10
13/32	.4062	7	.90	2.10
27/64	.4219	7 1/4	1.00	2.30
7/16	.4375	7 1/4	1.00	2.30
29/64	.4531	7 1/2	1.10	2.50
15/32	.4687	7 1/2	1.10	2.50
31/64	.4844	7 3/4	1.20	2.75
1/2	.5000	7 3/4	1.20	2.75
33/64	.5156	8	1.30	3.05
17/32	.5312	8	1.30	3.05
35/64	.5469	8 1/4	1.40	3.50
9/16	.5625	8 1/4	1.40	3.50
37/64	.5781	8 1/4	1.50	4.00
19/32	.5937	8 3/4	1.50	4.00
39/64	.6094	8 3/4	1.60	4.25
5/8	.6250	8 3/4	1.60	4.25
41/64	.6406	9	1.70	4.75
21/32	.6562	9	1.70	4.75
43/64	.6719	9 1/4	1.80	5.25
11/16	.6875	9 1/4	1.80	5.25
45/64	.7031	9 1/2	1.90	5.75
23/32	.7187	9 1/2	1.90	5.75
47/64	.7344	9 3/4	2.00	6.25
3/4	.7500	9 3/4	2.00	6.25
49/64	.7656	9 7/8	2.10	6.50
25/32	.7812	9 7/8	2.10	6.50
51/64	.7969	10	2.20	6.75
13/16	.8125	10	2.20	6.75
53/64	.8281	10	2.40	7.15
27/32	.8437	10	2.40	7.15
55/64	.8594	10	2.60	7.50
7/8	.8750	10	2.60	7.50
57/64	.8906	10	2.80	7.85
29/32	.9062	10	2.80	7.85
59/64	.9219	10 3/4	3.00	8.85
15/16	.9375	10 3/4	3.00	8.85
61/64	.9531	11	3.25	9.65
31/32	.9687	11	3.25	9.65
63/64	.9844	11	3.50	10.25
1	1.0000	11	3.50	10.25
1 1/64	1.0156	11 1/8	3.75	11.00
1 1/32	1.0311	11 1/8	3.75	11.00
1 3/64	1.0469	11 1/4	4.00	11.75
1 1/16	1.0625	11 1/4	4.00	11.75
1 5/64	1.0781	11 1/2	4.25	12.20
1 3/32	1.0937	11 1/2	4.25	12.20
1 7/64	1.1094	11 3/4	4.50	13.15
1 1/8	1.1250	11 3/4	4.50	13.15
1 9/64	1.1406	11 7/8	4.75	13.85
1 5/32	1.1562	11 7/8	4.75	13.85
1 11/64	1.1719	12	5.00	14.55
1 3/16	1.1875	12	5.00	14.55
1 13/64	1.2031	12 1/8	5.25	15.25
1 7/32	1.2187	12 1/8	5.25	15.25
1 15/64	1.2344	12 1/2	5.50	16.65
1 1/4	1.2500	12 1/2	5.50	16.65
1 9/32	1.2812	14 1/8	5.75	20.00
1 5/16	1.3125	14 1/4	6.00	20.75
1 11/32	1.3437	14 3/8	6.25	21.50
1 3/8	1.3750	14 1/2	6.50	22.25
1 13/32	1.4062	14 5/8	7.00	23.00
1 7/16	1.4375	14 3/4	7.50	23.75
1 15/32	1.4687	14 7/8	8.00	24.50
1 1/2	1.5000	15	8.50	25.25
1 9/16	1.5625	15 1/4	9.50	28.20
1 5/8	1.6250	15 5/8	10.50	31.25
1 11/16	1.6875	15 3/4	11.50	33.55
1 3/4	1.7500	16 1/4	12.50	37.00
1 13/16	1.8125	16 1/4	14.00	39.40
1 7/8	1.8750	16 1/2	15.50	42.75
1 15/16	1.9375	16 5/8	17.00	45.45
2	2.0000	16 5/8	18.50	47.85

Straight Shank Wire Gauge Twist Drills

Nos. by Gauge	Decimal Equivalent	Length Over All Inches	Carbon Steel per Doz.	High Speed Steel per Doz.
1	.2280	4	$2.75	$6.45
2	.2210	3 15/16	2.75	6.45
3	.2130	3 15/16	2.75	6.15
4	.2090	3 7/8	2.75	5.95
5	.2055	3 13/16	2.75	5.95
6	.2040	3 13/16	2.50	5.95
7	.2010	3 3/4	2.50	5.45
8	.1990	3 11/16	2.50	5.45
9	.1960	3 11/16	2.50	5.45
10	.1935	3 5/8	2.50	5.25
11	.1910	3 5/8	2.25	5.25
12	.1890	3 1/16	2.25	5.25
13	.1850	3 1/2	2.25	4.85
14	.1820	3 7/16	2.25	4.85
15	.1800	3 7/16	2.25	4.85
16	.1770	3 3/8	2.00	4.65
17	.1730	3 5/16	2.00	4.65
18	.1695	3 3/16	2.00	4.50
19	.1660	3 1/4	2.00	4.35
20	.1610	3 3/16	2.00	4.35
21	.1590	3 3/16	1.90	4.35
22	.1570	3 1/8	1.90	4.15
23	.1540	3 1/16	1.90	4.05
24	.1520	3 1/16	1.90	4.05
25	.1495	3	1.90	3.90
26	.1470	2 15/16	1.80	3.90
27	.1440	2 15/16	1.80	3.90
28	.1405	2 7/8	1.80	3.60
29	.1360	2 13/16	1.80	3.60
30	.1285	2 13/16	1.80	3.60
31	.1200	2 3/4	1.75	3.30
32	.1160	2 11/16	1.75	3.30
33	.1130	2 11/16	1.75	3.30
34	.1110	2 5/8	1.75	3.15
35	.1100	2 5/8	1.75	3.15
36	.1065	2 9/16	1.75	3.10
37	.1040	2 1/2	1.75	2.95
38	.1015	2 7/16	1.75	2.95
39	.0995	2 7/16	1.75	2.95
40	.0980	2 3/8	1.75	2.80
41	.0960	2 5/16	1.70	2.80
42	.0935	2 5/16	1.70	2.75
43	.0890	2 1/4	1.70	2.60
44	.0860	2 3/16	1.70	2.60
45	.0820	2 3/16	1.70	2.60
46	.0810	2 1/8	1.65	2.50
47	.0785	2 1/16	1.65	2.50
48	.0760	2 1/16	1.65	2.50
49	.0730	2	1.65	2.50
50	.0700	1 15/16	1.65	2.40
51	.0670	1 15/16	1.60	2.40
52	.0635	1 7/8	1.60	2.40
53	.0595	1 13/16	1.60	2.40
54	.0550	1 13/16	1.60	2.40
55	.0520	1 3/4	1.60	2.40
56	.0465	1 11/16	1.55	2.40
57	.0430	1 11/16	1.55	2.40
58	.0420	1 5/8	1.55	2.40
59	.0410	1 9/16	1.55	2.40
60	.0400	1 9/16	1.55	2.40
61	.0390	1 1/2	1.50	3.50
62	.0380	1 1/2	1.50	3.50
63	.0370	1 1/2	1.50	3.50
64	.0360	1 1/2	1.50	3.50
65	.0350	1 1/2	1.50	3.50
66	.0330	1 1/2	1.50	3.50
67	.0320	1 7/16	1.50	3.50
68	.0310	1 7/16	1.50	3.50
69	.0292	1 3/8	1.50	3.50
70	.0280	1 3/8	1.50	3.50
71	.0260	1 5/16	1.50	4.25
72	.0250	1 1/4	1.50	4.25
73	.0240	1 1/4	1.50	4.25
74	.0225	1 1/8	1.50	4.25
75	.0210	1 1/16	1.50	4.25
76	.0200	1	1.50	4.25
77	.0180	15/16	1.50	4.25
78	.0160	7/8	1.50	4.25
79	.0145	13/16	1.50	4.25
80	.0135	3/4	1.50	4.25

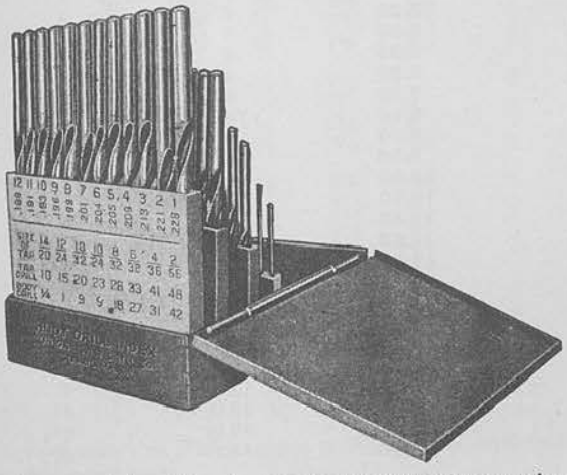
Center Drills

Fractional Sizes

Diam. Inches	Price per Doz.	Whole Length Inches	Length Flute Inches	Diam. Inches	Price per Doz.	Whole Length Inches	Length Flute Inches
1/32	$	1 1/8	5/8	3/16	$2.25	1 1/2	1
3/64	....	1 1/8	5/8	13/64	2.50	1 1/2	1
1/16	1.60	1 1/4	3/4	7/32	2.75	1 1/2	1
5/64	1.65	1 1/4	3/4	15/64	3.00	1 1/2	1
3/32	1.70	1 1/4	3/4	1/4	3.25	1 1/2	1
7/64	1.75	1 1/4	3/4	17/64	3.50	1 1/2	1
1/8	1.80	1 1/4	3/4	9/32	3.80	1 1/2	1
9/64	1.85	1 1/4	3/4	19/64	4.00	1 1/2	1
5/32	1.90	1 1/2	1	5/16	4.35	1 1/2	1
11/64	2.00	1 1/2	1	...	....	...	.

Straight Shank Drill Sets

Wire Gauge and Jobbers' Length



Set complete with cadmium steel plated index container. Holes in panels individually drilled. Drill sizes, decimal equivalents and tap sizes are plainly marked on panels, which are hinged and fold into box.

No. 29 Carbon Steel Jobbers' Length Drills 1/16 to 1/2-Inch by 64ths.....per set **$17.00**

No. 25 Carbon Steel Wire Gauge Drills, Nos. 1 to 60.....per set **15.25**

No. 29 High Speed Steel Jobbers' Length Drills 1/16 to 1/2-Inch by 64ths.....per set **30.25**

No. 25 High Speed Steel Wire Gauge Drills, Nos. 1 to 60.....per set **24.35**

Indexes without Drills for All Above Sets.....each **5.50**

Dimensions of Index Containers

No. 29 –4 in. wide, 7 in. long, 1 3/4 in. deep.
No. 25 3 1/4 in. wide, 4 1/2 in. long, 1 in. deep.

No. 109F Machine Countersinks

60° or 82° Included Angle Carbon Steel

Size Cut, Inches	Each	Length Over All, Inches	Diameter of Shank, Inches	Length of Shank, Inches
1/2	.75	3 7/8	1/2	2 1/4
5/8	.95	4	1/2	2 1/4
3/4	1.10	4 1/8	1/2	2 1/4
7/8	1.30	4 1/4	1/2	2 1/4
1	1.50	4 3/8	1/2	2 1/4

When ordering, be sure to specify degree of angle desired. Other sizes or angle can also be furnished. Prices on application.

Coe's Blacksmith Drills

Carbon Steel **High Speed Steel**

Shank measures .648 Inch in diameter (5/8 inch), 2 1/4 inches long.

Diameter Inches	List Price Each Carbon Steel	List Price Each High Speed Steel	Length Overall Inches	Diameter Inches	List Price Each Carbon Steel	List Price Each High Speed Steel	Length Overall Inches
1/8	$.50	....	4 7/8	23/32	$1.60	$5.25	6
5/32	.55	....	5 1/8	3/4	1.70	5.50	6
3/16	.60	....	5 1/2	25/32	1.80	5.75	6
7/32	.65	....	5 3/4	13/16	1.90	6.00	6
1/4	.70	....	6	27/32	2.00	6.25	6
9/32	.75	....	6	7/8	2.10	6.50	6
5/16	.80	....	6	29/32	2.20	6.75	6
11/32	.85	....	6	15/16	2.30	7.25	6
3/8	.90	....	6	31/32	2.40	7.75	6
13/32	.95	....	6	1	2.50	8.50	6
7/16	1.00	....	6	1 1/32	2.60	9.25	6
15/32	1.05	....	6	1 1/16	2.70	10.00	6
1/2	1.10	$3.50	6	1 1/8	2.90	11.25	6
17/32	1.15	3.75	6	1 3/16	3.10	12.50	6
9/16	1.20	4.00	6	1 1/4	3.30	13.75	6
19/32	1.25	4.25	6	1 5/16	3.60	.....	6
5/8	1.30	4.50	6	1 3/8	3.90	.....	6
21/32	1.40	4.75	6	1 7/16	4.20	.....	6
11/16	1.50	5.00	6	1 1/2	4.50	.....	6

Drifts or Center Keys

For Sockets and Sleeves

Number	1	2	3	4	5	6
Length, inches	6	6 3/4	7 1/2	8 1/2	10	11 3/4
Thickness, inches	13/64	1/4	5/16	15/32	5/8	3/4
Width, inches	23/32	27/32	1 1/32	1 7/32	1 7/16	1 11/16
List Price, each	$0.30	$0.35	$0.40	$0.50	$0.60	$0.75

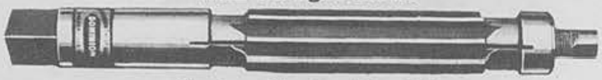
Drill and Countersink Combined

No. 114, Carbon Steel **No. 414, High Speed Steel**

The drill ends are both of the same diameter. The included angle of the countersink is 60°. Special sizes or angles made to order.

Size	Per Dozen Carbon Steel	Per Dozen High Speed Steel	Diam. Body Ins.	Diam. Drills Ins.	Length Overall Ins.
A-1	2.50	8.00	1/8	3/64	1 1/4
C-2	3.00	8.00	13/64	1/16	1 7/8
D-1	3.25	8.00	15/64	5/64	2
E-1	3.50	8.00	3/10	3/32	2 1/8
E-2	3.50	8.00	3/10	1/8	2 1/8
F-1	4.50	12.00	7/16	5/32	2 3/4
F-2	4.50	12.00	7/16	3/16	2 3/4
J-1	5.75	18.00	1/2	7/32	3
J-2	5.75	18.00	1/2	9/32	3
M-1	9.00	24.00	5/8	7/32	3 1/4
M-2	9.00	24.00	5/8	9/32	3 1/4
N-1	11.75	32.00	3/4	1/4	3 1/2
N-2	11.75	32.00	3/4	5/16	3 1/2

Expansion Hand Reamers
With Straight Flutes



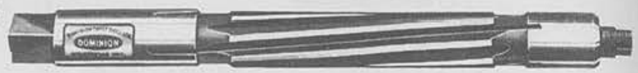
Carbon Steel. No. **121**

Limits of expansion recommended for these reamers are as follows: Sizes ¼ to 15/32-inch, .006 inch; ½ to 31/32-inch, .010 inch; 1 to 1 23/32-inch, .012 inch; 1¾ to 2-inch, .015.

Sizes and dimensions not listed can also be furnished. Prices on application.

Diam. In.	Each	Length Overall In.	Length Flute In.	Diam. In.	Each	Length Overall In.	Length Flute In.
¼	3.00	4	1½	1 1/32	7.25	10	4½
9/32	3.10	4	1½	1 1/16	7.25	10	4½
5/16	3.10	4	1½	1 3/32	7.75	10	4½
11/32	3.20	4	1½	1⅛	7.75	10½	4¾
⅜	3.20	5	2	1 5/32	8.30	10½	4¾
13/32	3.30	5	2	1 3/16	8.30	10½	4¾
7/16	3.30	5	2	1 7/32	8.90	10½	4¾
15/32	3.40	5	2	1¼	8.90	11	5
½	3.40	6	2½	1 9/32	9.50	11	5
17/32	3.65	6	2½	1 5/16	9.50	11	5
9/16	3.65	6	2½	1 11/32	10.50	11	5
19/32	4.00	6	2½	1⅜	10.50	11½	5¼
⅝	4.00	7	3	1 13/32	11.50	11½	5¼
21/32	4.40	7	3	1 7/16	11.50	11½	5¼
11/16	4.40	7	3	1 15/32	12.50	11½	5¼
23/32	4.80	7	3	1½	12.50	12	5½
¾	4.80	8	3½	1 9/16	13.00	12	5½
25/32	5.25	8	3½	1⅝	13.50	12½	5¾
13/16	5.25	8	3½	1 11/16	14.00	12½	5¾
27/32	5.75	8	3½	1¾	14.50	13	6
⅞	5.75	9	4	1 13/16	15.00	13	6
29/32	6.25	9	4	1⅞	15.50	13½	6¼
15/16	6.25	9	4	1 15/16	16.00	13½	6¼
31/32	6.75	9	4	2	16.50	14	6½
1	6.75	10	4½	...	....	....	...

Expansion Hand Reamers
With Spiral Flutes



Carbon Steel. No. **121S**

Limits of expansion recommended for these reamers are as follows: Sizes ⅜ and 7/16-inch, .006 inch; 1 to 1 11/16-inch, .012 inch; ½ to 15/16-inch, .010 inch; 1¾ to 2-inch, .015 inch.

Sizes and dimensions not listed can also be furnished. Prices on application.

Diam. Inches	Each	Length Overall Inches	Length Flute Inches
⅜	3.85	5	2
7/16	4.00	5	2
½	4.10	6	2½
9/16	4.40	6	2½
⅝	4.80	7	3
11/16	5.30	7	3
¾	5.80	8	3½
13/16	6.30	8	3½
⅞	6.90	9	4
15/16	7.50	9	4
1	8.10	10	4½
1 1/16	8.70	10	4½
1⅛	9.30	10½	4¾
1 3/16	10.00	10½	4¾
1¼	10.70	11	5
1 5/16	11.40	11	5
1⅜	12.60	11½	5¼
1 7/16	13.80	11½	5¼
1½	15.00	12	5½
1 9/16	15.60	12	5½
1⅝	16.20	12½	5¾
1 11/16	16.80	12½	5¾
1¾	17.40	13	6
1 13/16	18.00	13	6
1⅞	18.60	13½	6¼
1 15/16	19.20	13½	6¼
2	19.80	14	6½

Hand Reamers
With Straight Flutes

No. 115 Carbon Steel **No. 250 High Speed Steel**

Diam. In.	Carbon Steel Each	High Speed Each	Length Flute Inches	Length Overall Inches	Diam. Ins.	Carbon Steel Each	High Speed Each	Length Flute Inches	Length Overall Inches
⅛	1.00	3.00	1½	3	41/64	2.40	....	3 11/16	7⅜
9/64	1.20	....	1⅝	3¼	21/32	2.40	6.75	3 11/16	7⅜
5/32	1.20	3.25	1⅝	3¼	43/64	2.40	....	3⅞	7¾
11/64	1.20	....	1¾	3½	11/16	2.40	6.75	3⅞	7¾
3/16	1.20	3.25	1¾	3½	45/64	2.60	....	4 1/16	8⅛
13/64	1.40	....	1⅞	3¾	23/32	2.60	7.25	4 1/16	8⅛
7/32	1.40	3.50	1⅞	3¾	47/64	2.60	....	4 3/16	8⅜
15/64	1.40	....	2	4	¾	2.60	7.25	4 3/16	8⅜
¼	1.40	3.50	2	4	25/32	2.80	7.75	4⅜	8¾
17/64	1.50	....	2⅛	4¼	13/16	2.80	7.75	4 9/16	9⅛
9/32	1.50	3.75	2⅛	4¼	27/32	3.10	8.50	4 11/16	9⅜
19/64	1.50	....	2¼	4½	⅞	3.10	8.50	4⅞	9¾
5/16	1.50	3.75	2¼	4½	29/32	3.40	9.50	5	10
21/64	1.60	....	2⅜	4¾	15/16	3.40	9.50	5⅛	10¼
11/32	1.60	4.25	2⅜	4¾	31/32	3.70	10.50	5 5/16	10⅝
23/64	1.60	....	2½	5	1	3.70	10.50	5 7/16	10⅞
⅜	1.60	4.25	2½	5	1 1/16	4.00	11.50	5⅝	11¼
25/64	1.75	....	2⅝	5¼	1⅛	4.30	12.75	5 13/16	11⅝
13/32	1.75	4.75	2⅝	5¼	1 3/16	4.60	14.25	6	12
27/64	1.75	....	2¾	5½	1¼	4.90	15.75	6⅛	12¼
7/16	1.75	4.75	2¾	5½	1 5/16	5.20	17.25	6¼	12½
29/64	1.90	...	2⅞	5¾	1⅜	5.60	18.75	6 5/16	12⅝
15/32	1.90	5.25	2⅞	5¾	1 7/16	6.00	20.50	6 7/16	12⅞
31/64	1.90	...	3	6	1½	6.40	22.25	6½	13
½	1.90	5.25	3	6	1 9/16	6.80	....	6½	13
33/64	2.00	...	3⅛	6¼	1⅝	7.20	....	6½	13
17/32	2.00	5.75	3⅛	6¼	1 11/16	7.60	....	6¾	13½
35/64	2.00	...	3¼	6½	1¾	8.00	....	6¾	13½
9/16	2.00	5.75	3¼	6½	1 13/16	8.40	....	6¾	13½
37/64	2.20	...	3⅜	6¾	1⅞	8.80	....	7	14
19/32	2.20	6.25	3⅜	6¾	1 15/16	9.20	....	7	14
39/64	2.20	...	3½	7	2	9.60	....	7	14
⅝	2.20	6.25	3½	7					

Hand Reamers
With Spiral Flutes

Carbon Steel. No. **115S** High Speed Steel. No. **250S**

Diameter Ins.	Carbon Each	High Speed Each	Length Overall Ins.	Length Flute Ins.	Diameter Ins.	Carbon Each	High Speed Each	Length Overall Ins.	Length Flute Ins.
⅛	1.20	....	3	1½	23/32	3.10	8.00	8⅛	4 1/16
5/32	1.45	....	3¼	1⅝	¾	3.10	8.00	8⅜	4 3/16
3/16	1.45	....	3½	1¾	25/32	3.35	8.55	8¾	4⅜
7/32	1.70	....	3¾	1⅞	13/16	3.35	8.55	9⅛	4 9/16
¼	1.70	3.85	4	2	27/32	3.70	9.35	9⅜	4 11/16
9/32	1.80	4.15	4¼	2⅛	⅞	3.70	9.35	9¾	4⅞
5/16	1.80	4.15	4½	2¼	29/32	4.10	10.45	10	5
11/32	1.90	4.70	4¾	2⅜	15/16	4.10	10.45	10¼	5⅛
⅜	1.90	4.70	5	2½	31/32	4.45	11.55	10⅝	5 5/16
13/32	2.10	5.25	5¼	2⅝	1	4.45	11.55	10⅞	5 7/16
7/16	2.10	5.25	5½	2¾	1 1/16	4.80	12.65	11¼	5⅝
15/32	2.30	5.80	5¾	2⅞	1⅛	5.15	14.00	11⅝	5 13/16
½	2.30	5.80	6	3	1 3/16	5.50	15.70	12	6
17/32	2.40	6.35	6¼	3⅛	1¼	5.90	17.35	12¼	6⅛
9/16	2.40	6.35	6½	3¼	1 5/16	6.25	19.00	12½	6¼
19/32	2.65	6.90	6¾	3⅜	1⅜	6.70	20.65	12⅝	6 5/16
⅝	2.65	6.90	7	3½	1 7/16	7.20	22.55	12⅞	6 7/16
21/32	2.90	7.45	7⅜	3 11/16	1½	7.70	24.50	13	6½
11/16	2.90	7.45	7¾	3⅞	...	....	....	....	...

All sizes and dimensions not listed are special and subject to special prices.

Short Body Car Reamers

Straight Flute—High Speed Steel. No. 271

Spiral Flute—High Speed Steel. No. 272

Full Diameter Inches	List Price Each	Diameter at Point Inches	Length Overall Inches	Length of Flute Inches	Taper Shank Number
1/4	$2.55	5/32	5 7/16	2 1/2	1
9/32	2.55	11/64	5 7/16	2 1/2	1
5/16	2.70	3/16	5 11/16	2 3/4	1
11/32	2.80	13/64	5 11/16	2 3/4	1
3/8	2.80	7/32	5 11/16	2 3/4	1
13/32	3.00	15/64	6 5/16	2 3/4	2
7/16	3.10	1/4	6 15/16	3 1/2	2
15/32	3.35	9/32	7 1/16	3 1/2	2
1/2	3.45	5/16	7 9/16	4	2
17/32	3.65	11/32	7 9/16	4	2
9/16	3.65	3/8	7 9/16	4	2
5/8	4.00	3/8	8 1/16	4 1/2	2
11/16	4.50	3/8	8 13/16	4 1/2	3
3/4	5.00	7/16	9 1/2	5	3
13/16	5.35	1/2	9 1/2	5	3
7/8	5.70	9/16	9 1/2	5	3
15/16	6.20	5/8	9 1/2	5	3
1	6.75	11/16	9 1/2	5	3
1 1/16	7.50	3/4	9 1/2	5	3
1 1/8	8.25	13/16	9 1/2	5	3
1 3/16	9.25	7/8	9 1/2	5	3
1 1/4	11.00	15/16	9 1/2	5	3

Pilot points on these reamers facilitate their entry into irregular and small holes.
Made with both four and five flutes. Reamers with five flutes will be furnished unless otherwise specified.
Sizes and dimensions not listed can also be furnished.
Prices on application.

Taper Bridge or Boiler Reamers

With Taper Shanks

Straight Flute—Carbon Steel No. 120L

Full Diameter Inches	List Price Each	Diameter at Point Inches	Length Overall Inches	Length of Flute Inches	Taper Shank Number
1/4	$2.30	5/32	6 3/8	3 3/8	1
9/32	2.40	11/64	6 3/4	3 3/4	1
5/16	2.40	3/16	6 3/4	3 3/4	1
11/32	2.50	13/64	7 1/4	4	1
3/8	2.50	7/32	7 1/4	4	1
13/32	2.60	15/64	8 1/4	4 3/8	2
7/16	2.60	1/4	8 1/4	4 3/8	2
15/32	2.75	9/32	9	5 1/8	2
1/2	2.75	5/16	9	5 1/8	2
17/32	2.90	11/32	9	5 1/8	2
9/16	2.90	3/8	9	5 1/8	2
5/8	3.05	3/8	10	6 1/8	2
11/16	3.20	3/8	11 3/4	7 1/8	3
3/4	3.35	7/16	12	7 3/8	3
13/16	3.50	1/2	12	7 3/8	3
7/8	3.75	9/16	12	7 3/8	3
15/16	4.00	5/8	12	7 3/8	3
1	4.25	11/16	12	7 3/8	3
1 1/16	4.50	3/4	12	7 3/8	3
1 1/8	4.75	13/16	12	7 3/8	3
1 3/16	5.00	7/8	12	7 3/8	3
1 1/4	5.50	15/16	13	7 3/8	4
1 5/16	6.00	1	13	7 3/8	4
1 3/8	6.50	1 1/16	13	7 3/8	4
1 7/16	7.00	1 1/8	13	7 3/8	4
1 1/2	8.00	1 3/16	13	7 3/8	4

Reamers from 1/4 inch to 1 1/4 inches have five flutes; 1 5/16 inches to 1 1/2 inches have six flutes.
Sizes and dimensions not listed can also be furnished.
Prices on application.

Taper Pin Reamers

With Straight Flutes

Taper 1/4 Inch per Foot

Carbon Steel No. 120D — High Speed Steel No. 120E

With Spiral Flutes

Taper 1/4 Inch per Foot

Carbon Steel. No. 120S — High Speed Steel. No. 230S

Are all of the same taper. Point of each reamer will enter the hole reamed by the next size smaller. Taper, 1/4 inch per foot.

	Each				Diam. Large End Ins.	Diam. Small End Ins.	Lgth. Flute Ins.	Lgth. Overall Ins.
No.	Carbon Steel No. 120D	High Speed No. 120E	Carbon Steel No. 120S	High Speed No. 230S				
7-0	1.75	...	2.10	...	.0666	.0497	1/8	1 1/8
6-0	1.60	...	1.95	...	.0806	.0611	1/8	1 1/8
5-0	1.50	...	1.80	...	.0966	.0719	1 1/16	2 1/16
4-0	1.50	...	1.80	...	.1142	.0869	1 1/16	2 1/16
3-0	1.50	...	1.80	...	.1302	.1029	1 1/16	2 1/16
2-0	1.35	...	1.65	...	.1462	.1137	1 1/16	2 1/16
0	1.00	2.80	1.20	...	.1638	.1287	1 1/16	2 1/16
1	1.00	2.90	1.20	3.20	.1798	.1447	1 1/16	2 1/16
2	1.25	3.00	1.50	3.30	.2008	.1605	1 1/16	3 1/16
3	1.50	3.00	1.80	3.30	.2294	.1813	2 1/16	3 1/16
4	1.75	3.25	2.10	3.60	.2604	.2071	2 1/16	4 1/16
5	2.00	3.50	2.40	3.85	.2994	.2409	2 1/16	4 1/16
6	2.25	4.25	2.70	4.70	.354	.2773	3 1/16	5 1/16
7	2.50	5.25	3.00	5.80	.422	.3297	4 1/16	6 1/16
8	3.00	6.75	3.60	7.45	.505	.3971	5 1/16	7 1/16
9	3.50	8.25	4.20	9.10	.6066	.4805	6 1/16	8 1/16
10	4.50	9.00	5.40	9.90	.7216	.5799	6 1/16	9 1/16

Taper Shank Jobbers' Reamers

Diameter Ins.	No. 116 Carbon Steel Carbon Each	High Speed Each	Length Over All Ins.	Length of Flute Ins.	Diameter Ins.	No. 251 High Speed Steel Carbon Each	High Speed Each	Length Over All Ins.	Length of Flute Ins.
1/4	1.70	4.00	5 3/16	2	23/32	...	7.75	8	3 7/8
9/32	...	4.25	5 7/16	2	3/4	3.10	7.75	8 3/8	4 3/16
5/16	1.80	4.25	5 1/2	2 1/4	13/16	3.35	8.50	8 13/16	4 9/16
11/32	...	4.75	5 1/2	2 1/4	7/8	3.70	9.50	9 5/16	4 7/8
3/8	1.90	4.75	5 13/16	2 1/2	15/16	4.10	10.50	10	5 1/8
13/32	...	5.25	5 13/16	2 1/2	1	4.45	11.50	10 3/8	5 7/16
7/16	2.15	5.25	6 1/8	2 3/4	1 1/16	4.80	12.50	10 5/8	5 5/8
15/32	...	5.75	6 1/8	2 3/4	1 1/8	5.15	13.75	10 7/8	5 13/16
1/2	2.30	5.75	6 7/16	3	1 3/16	5.50	15.25	11 1/8	6
17/32	...	6.25	6 7/16	3	1 1/4	5.90	16.75	12 1/8	6 1/8
9/16	2.40	6.25	6 3/4	3 1/4	1 5/16	6.25	18.25	12 11/16	6 1/4
19/32	...	6.75	6 3/4	3 1/4	1 3/8	6.70	19.75	12 13/16	6 5/16
5/8	2.65	6.75	7 1/16	3 1/2	1 7/16	7.20	21.50	13	6 7/16
21/32	...	7.25	7 1/16	3 1/2	1 1/2	7.70	23.25	13 1/8	6 1/2
11/16	2.90	7.25	8	3 7/8	...	...	....	....	...

Above Reamers have Taper Shanks as Follows:

Diam. . . .Ins. 1/4 to 19/32 5/8 to 7/8 15/16 to 1 3/16 1 1/4 to 1 1/2

Std. Taper

Shank No. . . 1 2 3 4

All sizes and dimensions not listed are special and subject to special prices.

Repairman's Taper Reamers

With Straight Flutes

Carbon Steel. No. 136

No.	Each	Diameter Large End, Inches	Diameter at Point, Inches	Length of Flute, Inches
1115	1.00	1/2	1/8	3 1/2
1116	1.50	1	3/8	4 1/2
1156	1.25	15/16	3/16	3 1/16

This is a general utility tool for enlarging holes in thin and medium thick metal, and is economical because the taper permits the use of one reamer over a large range of sizes. Commonly used by electricians, linemen, carpenters, plumbers, automobile mechanics, blacksmiths, etc.

Straight and Taper Boiler Taps

Straight

Taper

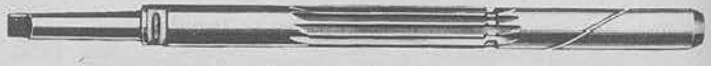
Have 12 threads to the inch. Furnished with National Standard or V form of thread.

Taper, 3/4 inch to foot. Diameter is measured 5/8 inch from large end of thread. Sizes and dimensions not listed, and left-hand taps are special.

Diam. In.	Lgth. In.	Price Each	Diam. In.	Lgth. In.	Price Each	Diam. In.	Lgth. In.	Price Each
1/2	4 1/4	$1.05	7/8	6	$2.50	1 1/4	7 1/8	$4.05
9/16	4 5/8	1.25	15/16	6 1/4	2.80	1 5/16	7 1/4	4.35
5/8	5	1.40	1	6 1/2	3.35	1 3/8	7 3/8	4.70
11/16	5 1/4	1.60	1 1/16	6 3/4	3.50	1 7/16	7 1/2	5.30
3/4	5 1/2	1.95	1 1/8	6 7/8	3.65	1 1/2	7 5/8	5.50
13/16	5 3/4	2.25	1 3/16	7	3.85	...	...	....

Special Reamers

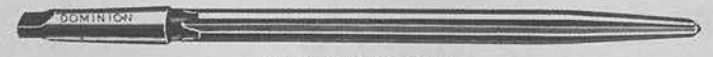
Spiral Fluted Reamer with Pilot



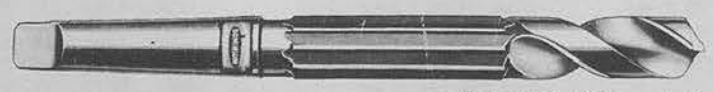
Straight Flute Reamer with Front and Back Pilots

Line Reamer with Combination Spiral and Straight Flutes

Alloy Steel Expansion Reamer for Use in Cast Iron and Non-Ferrous Metals



Mud-Ring Reamer



Combined Drills and Reamers

For drilling and reaming in one operation. These tools may be manufactured to many varied designs to suit individual needs.

The reamers illustrated above are for special applications. These as well as many others of special types can be furnished.

Prices on application.

Fluted Chucking Reamers

With Straight Shanks

Diam. Ins.	No. 119B Carbon Steel Each	No. 262B High Speed Steel Each	Lgth. Overall, Ins.	Lgth. Flutes Ins.
1/8	.90	2.00	3 1/2	7/8
5/32	1.00	2.50	4	1
3/16	1.00	2.50	4 1/2	1 1/8
7/32	1.20	3.00	5	1 1/4
1/4	1.20	3.00	6	1 1/2
9/32	1.30	3.25	6	1 1/2
5/16	1.30	3.25	6	1 1/2
11/32	1.45	3.75	6	1 1/2
3/8	1.45	3.75	7	1 3/4
13/32	1.60	4.25	7	1 3/4
7/16	1.60	4.25	7	1 3/4
15/32	1.80	4.75	7	1 3/4
1/2	1.80	4.75	8	2
17/32	2.00	5.25	8	2
9/16	2.00	5.25	8	2
19/32	2.25	5.75	8	2
5/8	2.25	5.75	9	2 1/4
21/32	2.40	6.25	9	2 1/4
11/16	2.40	6.25	9	2 1/4
23/32	2.55	6.75	9	2 1/4
3/4	2.55	6.75	9 1/2	2 1/2
25/32	2.80	7.25	9 1/2	2 1/2
13/16	2.80	7.25	9 1/2	2 1/2
27/32	3.00	8.00	9 1/2	2 1/2
7/8	3.00	8.00	10	2 5/8
29/32	3.25	9.00	10	2 5/8
15/16	3.25	9.00	10	2 5/8
31/32	3.45	10.00	10	2 5/8
1	3.45	10.00	10 1/2	2 3/4
1 1/16	3.70	11.25	10 1/2	2 3/4
1 1/8	3.90	12.50	11	2 7/8
1 3/16	4.15	13.75	11	2 7/8
1 1/4	4.35	15.25	11 1/2	3
1 5/16	4.60	17.00	11 1/2	3
1 3/8	4.80	18.75	12	3 1/4
1 7/16	5.05	20.50	12	3 1/4
1 1/2	5.25	22.25	12 1/2	3 1/2
...	...	...	...	...

Fluted Chucking Reamers

With Taper Shanks

Diameter Inches	No. 119A Carbon Steel Each	No. 262A High Speed Steel Each	Length Flute Inches	Length Over-all Inches
1/4	1.45	3.50	1 1/2	6
5/32	1.55	3.75	1 1/2	6
5/16	1.55	3.75	1 1/2	6
11/32	1.75	4.25	1 1/2	6
5/8	1.75	4.25	1 3/4	7
13/32	1.90	4.75	1 3/4	7
7/16	1.90	4.75	1 3/4	7
15/32	2.15	5.25	1 3/4	7
1/2	2.15	5.25	2	8
17/32	2.40	5.75	2	8
9/16	2.40	5.75	2	8
19/32	2.70	6.25	2	8
5/8	2.70	6.25	2 1/4	9
21/32	2.90	6.75	2 1/4	9
11/16	2.90	6.75	2 1/4	9
23/32	3.05	7.25	2 1/4	9
3/4	3.05	7.25	2 1/2	9 1/2
25/32	3.35	8.00	2 1/2	9 1/2
13/16	3.35	8.00	2 1/2	9 1/2
27/32	3.60	9.00	2 1/2	9 1/2
7/8	3.60	9.00	2 5/8	10
29/32	3.90	10.00	2 5/8	10
15/16	3.90	10.00	2 5/8	10
31/32	4.15	11.00	2 5/8	10
1	4.15	11.00	2 3/4	10 1/2
1 1/16	4.45	12.25	2 3/4	10 1/2
1 1/8	4.70	13.50	2 7/8	11
1 3/16	5.00	14.75	2 7/8	11
1 1/4	5.20	16.25	3	11 1/2
1 5/16	5.50	18.00	3	11 1/2
1 3/8	5.75	19.75	3 1/4	12
1 7/16	6.05	21.50	3 1/4	12
1 1/2	6.30	23.25	3 1/2	12 1/2
...	...	...	...	...

Above Reamers have Taper Shanks as follows:

Size, inches	1/4 to 19/32	5/8 to 29/32	15/16 to 1 3/16	1 1/4 to 1 1/2
Shank Taper No.	1	2	3	4

Reamers for brass or bronze require special clearance and are so furnished on request.

All sizes and dimensions not listed are special.

T Slot Cutters

High Speed Steel

Made with Brown & Sharpe Taper Shanks. They have staggered teeth and are furnished with either right or left hand cut. Shanks having No. 5 taper have no tangs. All others have tangs, although No. 9 and 10 can be furnished with holes tapped for draw bolt, when so ordered.

Bolt Size Ins.	Each	Diam. Cutter Ins.	Thickness of Cutter Inches	Diam. of Neck Inches	Length Overall Inches	B & S Shank No.
1/4	6.20	1/16	1/64	1/64	2 5/8	5
5/16	6.60	3/32	1/64	1/64	2 13/16	5
3/8	11.40	1/8	1/64	1/32	4 1/16	7
1/2	12.60	3/16	1/64	1/32	5	7
5/8	16.40	1 1/4	1/64	1/32	5 1/4	7
3/4	18.90	1 1/2	5/64	1/32	6 7/8	9
1	29.00	1 7/8	3/64	1 1/32	7 1/4	9
1 1/4	37.50	2 3/32	1 3/32	1 3/32	7 13/16	9
1 1/2	69.30	2 3/16	1 1/16	1 1/32	10 5/8	10

When ordering, be sure to specify whether right or left hand cutters are wanted.

Can also be furnished in other sizes. Prices on application.

Two Lipped End Mills

With Brown & Sharpe Taper Shanks
High Speed Steel

Regularly furnished with either right or left hand cut and with either spiral or straight flutes.

Spiral mills with right hand cut have right hand spiral; those having left hand cut have left hand spiral. No. 5 B & S Shanks have no tangs. Other shank sizes are tanged, although No. 9 B & S taper shanks can be furnished with holes tapped 5/8-11 NC right hand class 2 fit threads, when so ordered.

Diam. Inches	No. of Taper	Length of Cut Ins.	Length Overall Ins.	Each
1/4	5	3/8	2 9/16	3.40
1/4	7	3/8	4 3/8	5.30
5/16	5	13/32	2 21/32	3.40
5/16	7	13/32	4 13/32	5.30
3/8	7	1/2	4 9/16	5.40
7/16	7	21/32	4 23/32	5.40
1/2	7	3/4	4 3/4	5.40
5/8	7	1 1/8	5 1/8	5.60
3/4	7	1 1/8	5 1/8	5.80
7/8	7	1 5/8	5 5/16	6.70
1	9	1 1/2	6 3/4	9.90
1 1/4	9	1 7/8	7 1/8	11.60
1 1/2	9	2 1/4	7 1/2	14.60
...	.	...	...	....

When ordering, specify right or left hand.

Two Lipped End Mills

With Straight Shanks—High Speed Steel

Regularly furnished with either right or left hand cut and with either spiral or straight flutes.

Spiral mills with right hand cut have right hand spiral; with left hand cut have left hand spiral. Shank is same diameter as the mill.

Diam. Ins.	Each	Length of Cut Ins.	Length Overall Ins.	Diam. Ins.	Each	Length of Cut Ins.	Length Overall Ins.
1/4	1.90	3/8	1 7/16	1/2	2.80	3/4	2 1/16
5/16	2.10	13/32	1 9/16	5/8	3.30	15/16	2 5/16
3/8	2.20	9/16	1 5/8	3/4	3.60	1 1/8	2 1/2
7/16	2.40	21/32	2	..	...	...	...

Lathe Mandrels

Hardened and Ground

No. 154

Ground true with slightly tapering sides. Size is stamped on large end. Sizes not listed take special prices.

Diam. Ins.	Each	Length Overall Ins.	Diam. Ins.	Each	Length Overall Ins.
1/8	1.20	2 1/2	1 3/16	4.00	7 3/4
5/32	1.20	3	1 1/4	4.00	8
3/16	1.20	3	1 5/16	4.80	8 1/4
7/32	1.20	3 3/4	1 3/8	4.80	8 1/2
1/4	1.20	3 3/4	1 7/16	5.60	8 3/4
9/32	1.30	4	1 1/2	5.60	9
5/16	1.30	4	1 9/16	6.40	9 1/4
11/32	1.40	4 1/4	1 5/8	6.40	9 1/2
3/8	1.40	4 1/4	1 11/16	7.20	9 3/4
13/32	1.50	4 1/2	1 3/4	7.20	10
7/16	1.50	4 1/2	1 13/16	8.00	10 1/4
15/32	1.60	5	1 7/8	8.00	10 1/2
1/2	1.60	5	1 15/16	9.00	10 3/4
9/16	1.80	5 1/4	2	9.00	11
5/8	1.80	5 1/2	2 1/8	10.00	11 1/2
11/16	2.00	5 3/4	2 1/4	11.00	12
3/4	2.00	6	2 3/8	12.00	12
13/16	2.40	6 1/4	2 1/2	13.00	12 1/2
7/8	2.40	6 1/2	2 5/8	14.50	12 1/2
15/16	2.80	6 3/4	2 3/4	16.00	13
1	2.80	7	2 7/8	17.50	13
1 1/16	3.40	7 1/4	3	19.00	13
1 1/8	3.40	7 1/2			

Lathe Centers

Morse Taper Shank No.	Each	Length Over All, Inches	Length Body, Inches
0	.50	2 7/8	3/4
1	.60	3 5/16	1
2	.75	4 3/16	1 7/16
3	1.25	5 1/4	1 7/8
4	1.75	6 3/4	2 7/16
5	3.50	8 1/2	3 1/16

Included angle of point is 60 degrees and ground fine.

Center Reamers

60° or 82° Included Angle

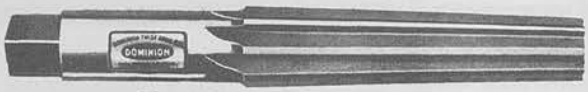
No. 120M Carbon Steel			No. 120N High Speed Steel		
Diam. Body In.	Diam. Shank In.	Length Overall In.	Length Shank In.	Carbon Steel Each	High Speed Each
1/4	3/16	1 1/2	3/4	.40	1.00
3/8	1/4	1 3/4	7/8	.45	1.15
1/2	3/8	2	1	.55	1.40
5/8	3/8	2 1/4	1	.70	1.75
3/4	1/2	2 5/8	1 1/4	.85	2.15

Please specify degree of angle desired.

Sizes, dimensions or degree of angle not listed can also be furnished. Prices on application.

Taper Reamers for Drill Sockets

With Square Shanks



No. 118. Finishing Reamer

No. 118A. Roughing Reamer

Size Number of Morse Taper	List Price Each		Diameter of Finishing Reamer		Length Overall Inches	Length of Flute Inches	Taper per Foot Inches
	Finishing	Roughing	Small End Inches	Large End Inches			
0	$1.60	$1.90	.250	.367	3 3/4	2 1/4	0.625
1	2.00	2.40	.367	.517	5	3	0.600
2	2.60	3.10	.569	.745	6	3 1/2	0.602
3	3.40	4.10	.775	.988	7 1/4	4 1/4	0.602
4	4.20	5.05	1.017	1.289	8 1/2	5 1/4	0.623
5	6.60	7.90	1.471	1.799	9 3/4	6 1/4	0.630
6	12.00	14.40	2.112	2.555	12 1/4	8 1/2	0.626

Taper Reamers for Drill Sockets

With Taper Shanks

No. 118C. Finishing Reamer

No. 118D. Roughing Reamer

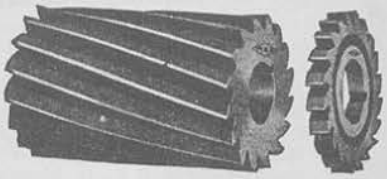
Size Number of Morse Taper	List Price Each		Diameter of Finisning Reamer		Length Overall Inches	Length of Flutes Inches	Taper Shank Number
	Finishing	Roughing	Small End Inches	Large End Inches			
0	$2.65	$3.20	.250	.367	5 11/32	2 1/4	0
1	2.95	3.55	.367	.517	6 5/16	3	1
2	3.25	3.90	.569	.745	7 3/8	3 1/2	2
3	4.45	5.35	.775	.988	8 7/8	4 1/4	3
4	6.00	7.20	1.017	1.289	10 7/8	5 1/4	4
5	10.10	12.10	1.471	1.799	13 1/8	6 1/4	5
6	21.35	25.60	2.112	2.555	17 13/16	8 1/2	6

Roughing Reamers are made .010 inch smaller in diameter than Finishing Reamers.

Finishing Reamers furnished with spiral flutes when requested.

Prices on application.

Plain Milling Cutters

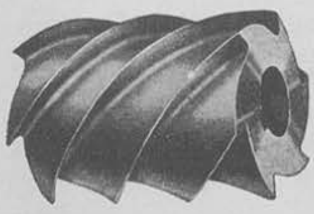


Diam. Inches	Width Face Inches	Hole Inches	Each	Diam. Inches	Width Face Inches	Hole Inches	Each
2¼	½	⅞	4.50	3	⅝	1¼	6.90
2¼	1	⅞	6.00	3	¾	1¼	7.50
2½	3/16	1	3.10	3	⅞	1¼	8.10
2½	¼	1	4.10	3	1	1¼	8.70
2½	5/16	1	4.30	3	1¼	1¼	9.90
2½	⅜	1	4.60	3	1½	1¼	11.00
2½	7/16	1	4.90	3	2	1¼	13.40
2½	½	1	5.10	3	3	1¼	18.10
2½	⅝	1	5.60	4	¼	1	7.10
2½	¾	1	6.00	4	¼	1¼	7.10
2½	1	1	6.90	4	5/16	1	7.70
2½	1½	1	8.60	4	5/16	1¼	7.70
2½	2	1	10.30	4	⅜	1	8.20
2½	2½	1	12.10	4	⅜	1¼	8.20
2½	3	1	13.70	4	½	1¼	9.30
3	3/16	1	3.80	4	⅝	1¼	10.20
3	¼	1	5.00	4	¾	1¼	11.20
3	5/16	1	5.40	4	1	1¼	13.10
3	⅜	1	5.70	4	1½	1¼	17.10
3	⅜	1¼	5.70	4	2	1¼	21.00
3	7/16	1¼	6.00	4	3	1¼	28.90
3	½	1¼	6.40	4	4	1¼	36.80

Cutters of less than ⅜ inch face have straight teeth.
Cutters of ¾ inch face and over have spiral teeth.
Cutters having nicked teeth or dimensions other than listed are special and subject to special prices.

Plain Milling Cutters

Heavy Duty Series—High Speed Steel



Designed to take heavy cuts where a large amount of material is to be removed. Has 45° left hand spiral undercut teeth, with ground faces.

Diam. Ins.	Width Face Ins.	Size Hole Ins.	High Speed Steel Each
2½	2	1	10.30
2½	4	1	17.30
3	2	1¼	13.40
3	2½	1¼	15.80
3	3	1¼	18.10
3	4	1¼	22.80
3	6	1¼	33.60
4	2	1½	21.00
4	3	1½	28.90
4	4	1½	36.80
4	6	1½	53.90
4½	6	2	66.30
4½	12	2	136.60

Milling Cutters

Helical Plain Milling—High Speed Steel

Has 52° spiral teeth. Intended for light cuts at high speeds in soft steel, brass and bronze. Very successfully used in thin or springy work, also in railroad shops for milling clevis rods and piston rod key slots. Not recommended for heavy duty milling.

Diam. Ins.	Width Ins.	Hole Ins.	Each	Diam. Ins.	Width Ins.	Hole Ins.	Each
3	4	1¼	25.10	4	8	1½	80.60
3	6	1¼	37.00	4	10	1½	101.90
4	4	1½	40.50	4½	6	2	72.90
4	6	1½	59.30	4½	12	2	150.30

Side Milling Cutters

Cutters having dimensions other than listed are special and subject to special prices.

High Speed Steel

Diam. Inches	Width Face Inches	Hole Inches	Each	Diam. Inches	Width Face Inches	Hole Inches	Each
2	3/16	½	4.20	4	¾	1	13.30
2	3/16	⅝	4.20	4	¾	1¼	13.30
2	¼	½	4.40	4	⅞	1	14.30
2	¼	⅝	4.40	4	⅞	1¼	14.30
2	⅜	½	4.80	5	½	1	15.10
2	⅜	⅝	4.80	5	½	1¼	15.10
2½	¼	⅞	5.40	5	⅝	1	16.70
2½	5/16	⅞	5.70	5	⅝	1¼	16.70
2½	⅜	⅞	6.00	5	¾	1	18.20
2½	½	⅞	6.60	5	¾	1¼	18.20
3	¼	1	6.50	5	1	1¼	21.30
3	5/16	1	6.90	6	½	1	19.70
3	⅜	1	7.20	6	½	1¼	19.70
3	7/16	1	7.60	6	⅝	1¼	21.80
3	½	1	8.00	6	¾	1	24.00
4	¼	1	9.00	6	¾	1¼	24.00
4	⅜	1	10.10	6	1	1¼	28.40
4	½	1	11.30	7	¾	1¼	34.40
4	½	1¼	11.30	7	1	1¼	40.30
4	⅝	1	12.30	8	¾	1¼	45.70
4	⅝	1¼	12.30	8	1	1¼	53.40

Side Milling Cutters

Staggered Tooth—High Speed Steel

This cutter is successfully used for milling keyways and deep slots. It is provided with alternate spiral teeth with undercut on the peripheral teeth, producing the proper cutting action with the possibility of chatter reduced to a minimum. The side teeth are not cleared for cutting but are slightly undercut to avoid scoring the side surfaces that are being milled.

For the milling of wide slots, it is recommended that two or more cutters of equal diameter be used together.

Diam. Ins.	Width Face Ins.	Size Hole Ins.	High Speed Steel Each	Diam. Ins.	Width Face Ins.	Size Hole Ins.	High Speed Steel Each
2½	¼	⅞	6.80	4	⅝	1¼	15.40
2½	5/16	⅞	7.10	4	¾	1¼	16.60
2½	⅜	⅞	7.50	4	⅞	1¼	17.90
2½	½	⅞	8.30	5	½	1¼	18.90
3	3/16	1	7.80	5	⅝	1¼	20.90
3	¼	1	8.10	5	¾	1¼	22.80
3	5/16	1	8.60	6	⅜	1¼	21.80
3	⅜	1	9.00	6	½	1¼	24.60
3	½	1¼	10.00	6	⅝	1¼	27.30
3	⅝	1¼	10.80	6	¾	1¼	30.00
3	¾	1¼	11.50	6	⅞	1¼	32.80
4	¼	1¼	11.30	6	1	1¼	35.50
4	5/16	1¼	12.00	8	⅜	1½	42.40
4	⅜	1¼	12.60	8	½	1½	47.40
4	7/16	1¼	13.40	8	⅝	1½	52.30
4	½	1¼	14.10	8	¾	1½	57.10

Deep Counterbored Spiral Shell End Mills

High Speed Steel

(National Standard)

Made with undercut teeth and have an unusually deep counterbore which permits many regrindings of the teeth, thereby adding to the life of the mills.

Adopted as standard by the American Standards Association, April, 1930.

Fit National Machine Tool Builders Standard Type C arbor. Arbors can be furnished to fit these mills.

Furnished either right or left hand. Specify which is desired when ordering.

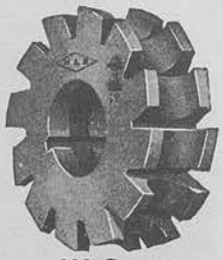
Sizes and specifications not listed are special.

Diameter Inches	High Speed Steel Each	Length of Cut Inches	Nominal Dimensions Driving Slot Diam. Hole Inches	Width Inches	Depth Inches
1 1/4	**5.40**	1	1/2	1/4	5/32
1 1/2	**6.00**	1 1/8	1/2	1/4	5/32
1 3/4	**6.70**	1 1/4	3/4	5/16	3/16
2	**7.70**	1 3/8	3/4	5/16	3/16
2 1/4	**9.00**	1 1/2	1	3/8	7/32
2 1/2	**10.70**	1 5/8	1	3/8	7/32
2 3/4	**12.10**	1 5/8	1	3/8	7/32
3	**14.20**	1 3/4	1 1/4	1/2	9/32
3 1/2	**19.20**	1 7/8	1 1/4	1/2	9/32
4	**25.50**	2 1/4	1 1/2	5/8	3/8
4 1/2	**30.80**	2 1/4	1 1/2	5/8	3/8
5	**36.70**	2 1/4	1 1/2	5/8	3/8
5 1/2	**42.10**	2 1/4	2	3/4	7/16
6	**50.70**	2 1/4	2	3/4	7/16

Convex and Concave Cutters

For Milling Half Circles

331 Convex
High Speed Steel



330 Concave
High Speed Steel

Diam. Circle Inches	Diam. Cutter Inches	Hole Inches	No. 331 Each	No. 330 Each	Diam. Circle Inches	Diam. Cutter Inches	Hole Inches	No. 331 Each	No. 330 Each
1/8	2	7/8	**6.00**	**6.20**	1/2	2 1/4	7/8	**8.10**	**9.50**
1/16	2	7/8	**6.00**	**6.80**	5/8	2 3/4	1	**10.40**	**12.10**
1/4	2	7/8	**6.20**	**7.00**	3/4	3	1	**12.00**	**14.70**
5/16	2 1/4	7/8	**7.20**	**8.50**	7/8	3 1/4	1	**13.90**	**16.90**
3/8	2 1/4	7/8	**7.50**	**8.50**	1	3 1/4	1	**14.60**	**18.40**
7/16	2 1/4	7/8	**7.80**	**9.00**	...	...	...	....	....

These cutters can be resharpened by grinding without changing their outline.

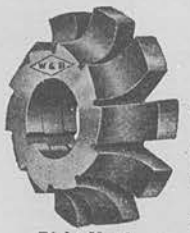
SEND US YOUR MAIL ORDERS

Milling Cutters

Half Side—High Speed Steel

Designed for side and straddle milling. It is made with spiral and undercut teeth to provide the shearing action that is necessary for good milling. This combination makes it possible to mill more pieces between grinds, and reduces the idle periods of the machine. The design of the teeth allows for maximum resharpenings and regashings.

Diam. Ins.	Width Ins.	Hole Ins.	Each	Diam. Ins.	Width Ins.	Hole Ins.	Each
4	3/4	1 1/4	**13.30**	7	3/4	1 1/2	**34.40**
5	3/4	1 1/4	**18.20**	7	1	1 1/2	**40.30**
6	3/4	1 1/4	**24.00**	8	3/4	1 1/2	**45.70**
6	1	1 1/2	**28.40**	8	1	1 1/2	**53.40**



Right Hand

Corner Rounding Cutters

These cutters are standard with either right or left hand cut.

They have formed teeth and can be re-sharpened without changing their form.

When ordering, specify if right or left hand cutters are wanted.

Radius of Circle Inches	Diameter Inches	Hole Inches	Each
1/8	2	7/8	**6.20**
1/4	2 1/4	7/8	**7.80**
3/8	3	1	**11.30**
1/2	3 1/4	1	**13.10**
5/8	3 1/2	1	**16.00**

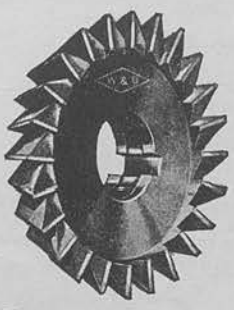
Double Angle Milling Cutters

High Speed Steel

Double Angle Cutters will be furnished with an included angle of 45, 60 or 90 degrees.

Diameter, Inches	Thickness, Inches	Hole, Inches	Each
2 3/4	1/2	1	**7.20**

Cutters having dimensions other than listed are special and subject to special prices.



Single Angle Milling Cutters

High Speed Steel

Angular Cutters will be furnished either right hand (as illustrated) or left hand, with angle of 45 or 60 degrees.

Diameter, Inches	Thickness, Inches	Hole, Inches	Each
2 1/2	1/2	7/8	**6.60**
2 3/4	1/2	1	**7.20**
3	1/2	1 1/4	**8.00**

Woodruff Key Seat Cutters

Regularly furnished right hand. Left hand cutters and dimensions other than listed take special prices.

High Speed Steel

New A.S.A. No.*	Old No.	Each	Thickness Ins.	Diam. Cutter Ins.	New A.S.A. No.*	Old No.	Each	Thickness Ins.	Diam. Cutter Ins.
305	4	2.80	3/32	5/8	809	18	4.20	1/4	1 1/8
404	3	2.80	1/8	1/2	810	21	4.60	1/4	1 1/4
405	5	2.80	1/8	5/8	811	22	5.00	1/4	1 3/8
406	7	3.10	1/8	3/4	812	24	5.50	1/4	1 1/2
505	6	2.80	5/32	5/8	1008	B	4.00	5/16	1
506	8	3.10	5/32	3/4	1009	C	4.40	5/16	1 1/8
507	10	3.40	5/32	7/8	1010	D	4.90	5/16	1 1/4
606	9	3.10	3/16	3/4	1011	23	5.40	5/16	1 3/8
607	11	3.40	3/16	7/8	1012	25	5.90	5/16	1 1/2
608	13	3.80	3/16	1	1210	E	4.90	3/8	1 1/4
609	16	4.20	3/16	1 1/8	1211	F	5.40	3/8	1 3/8
807	A	3.40	1/4	7/8	1212	G	5.90	3/8	1 1/2
808	15	3.80	1/4	1	....	..	....	..	..

*The last two digits of the new A. S. A. numbers represent the diameter of the cutter in eighths of an inch, and the preceding digits represent the width of the cutter in thirty-seconds of an inch. Thus 404 indicates cutter 4/32x1/8 or 1/8x1/2; 1210 indicates cutter 12/32x10/8 or 3/8x1 1/4.

All cutters have shanks 1/2 inch in diameter, slabbed on the end for driving purposes.

Coarse tooth cutters can be furnished. Prices on application.

When ordering, give number of cutter wanted.

Woodruff Keyseat Cutters

Arbor Type—High Speed Steel

This cutter is made with staggered teeth and without relief on side teeth.

All arbor type cutters are furnished with diameters 1/32-inch larger than listed to allow for re-sharpening.

No.	Each	Nominal Diam., Inches	Width Face, Ins.	Size Hole, Ins.	No.	Each	Nominal Diam., Inches	Width Face, Ins.	Size Hole. Ins.
26	5.90	2 1/8	3/16	3/4	V	9.00	2 3/4	1/2	1
27	6.10	2 1/8	1/4	3/4	30	10.80	3 1/2	3/8	1
28	6.40	2 1/8	5/16	3/4	31	11.40	3 1/2	7/16	1
29	6.80	2 1/8	3/8	3/4	32	11.90	3 1/2	1/2	1
R	7.40	2 3/4	1/4	1	33	12.90	3 1/2	9/16	1
S	7.90	2 3/4	5/16	1	34	12.90	3 1/2	5/8	1
T	8.30	2 3/4	3/8	1	35	13.90	3 1/2	11/16	1
U	8.60	2 3/4	7/16	1	36	13.90	3 1/2	3/4	1

Keys and cutters correspond in size and number with the following exceptions:

For Key No. 126—Use Cutter No. 26
For Key No. 127—Use Cutter No. 27
For Key No. 128—Use Cutter No. 28
For Key No. 129—Use Cutter No. 29
For Key No. RX—Use Cutter No. R
For Key No. SX—Use Cutter No. S
For Key No. TX—Use Cutter No. T
For Key No. UX—Use Cutter No. U
For Key No. VX—Use Cutter No. V
Always order by Number.

Spiral Cut End Mills

With Taper Shanks
High Speed Steel

These end mills are standard, with either right or left hand cut. Right hand mills have right hand spirals and left hand mills have left hand spirals.

Diam. Ins.	No. of Taper	Length of Cut Ins.	Length Overall Ins.	Each	Diam. Ins.	No. of Taper	Length of Cut Ins.	Length Overall Ins.	Each
1/4	5	5/8	2 13/16	3.30	3/4	7	1 1/4	5 1/4	5.30
5/16	5	11/16	2 7/8	3.30	7/8	7	1 7/16	5 7/16	6.10
3/8	5	3/4	2 15/16	3.30	1	7	1 5/8	5 5/8	7.00
7/16	5	7/8	3 1/16	3.50	1 1/8	9	1 3/4	7	9.30
1/2	5	15/16	3 1/8	3.50	1 1/4	9	2	7 1/4	10.50
1/2	7	15/16	4 13/16	5.10	1 1/2	9	2 1/4	7 1/2	13.30
9/16	7	1	5	5.10	1 3/4	9	2 1/2	7 3/4	16.60
5/8	7	1 1/8	5 1/8	5.30	2	9	2 3/4	8	21.00

When ordering, specify whether right or left hand mills are wanted.

Spiral End Mills

Morse Taper Shanks

High Speed Steel

Diameter Inches	No. of Taper	Length of Cut Inches	Whole Length Inches	Each
1/4	1	5/8	3 1/2	3.20
5/16	1	11/16	3 9/16	3.30
3/8	1	3/4	3 5/8	3.30
7/16	1	7/8	3 3/4	3.30
1/2	1	15/16	3 13/16	3.40
1/2	2	15/16	4 7/16	4.80
5/8	2	1 1/8	4 5/8	4.90
3/4	2	1 1/4	4 3/4	4.90
3/4	3	1 1/4	5 9/16	7.00
7/8	2	1 7/16	4 15/16	5.70
7/8	3	1 7/16	5 3/4	7.00
1	2	1 5/8	5 1/8	6.60
1	3	1 5/8	5 15/16	7.30
1 1/8	3	1 3/4	6 1/16	8.40
1 1/4	3	2	6 5/16	9.60

These End Mills are regularly furnished in right hand. End Mills having dimensions other than listed, and left hand Mills are special and subject to special prices.

Straight Shank End Mills

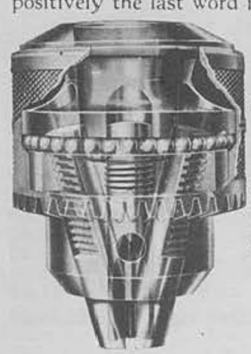
High Speed Steel

Diam. Inch	High Speed Each	Length Cut Inch	Length Overall Inches	Diam. Inch	High Speed Each	Length Cut Inch	Length Overall Inches
1/8	1.40	5/16	1 1/4	3/8	2.10	3/4	1 13/16
5/32	1.50	5/16	1 1/4	7/16	2.30	7/8	2 1/16
3/16	1.70	1/2	1 3/8	1/2	2.50	15/16	2 1/4
7/32	1.80	9/16	1 5/8	9/16	2.70	1	2 5/16
1/4	1.80	5/8	1 11/16	5/8	3.00	1 1/8	2 1/2
5/16	1.90	11/16	1 3/4	3/4	3.50	1 1/4	2 5/8

Furnished regularly either right or left hand. Under 1/4 inch diameter have straight teeth; 1/4 inch and over have spiral teeth. Dimensions other than listed take special prices. In ordering, specify right or left hand.

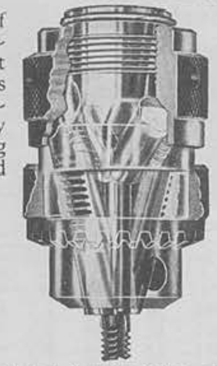
JACOBS SUPER CHUCK

This Ball Bearing Super model embodies the four essentials of chucking — Accuracy, Gripping Power, Speedy Operation and Durability. — Ball bearings eliminate friction, resulting in jaws that smoothly and rapidly spin into position. — Coarse pitch threads mean quick action and tremendous strength. — Ground parts, including the arbor hole, insure the highest degree of accuracy.— Heavy duty production on drilling machines, lathes and wood-working machinery demands this chuck. It is unrivaled in this field and positively the last word in drill chuck design.



Model No.	Capacity	List Prices Chucks	List Prices Extra Keys
8½	0-1/4"	$ 6.00	$0.40
9	0-5/16"	7.00	.40
11	0-3/8"	8.00	.40
14	0-1/2"	10.00	.50
16	1/16-5/8"	12.50	.75
18	1/16-3/4"	15.00	.75
20	3/8- 1"	20.00	1.25

JACOBS TAP CHUCK



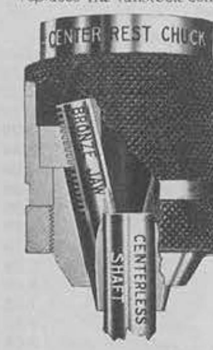
Model No.	Hand Tap Capacity	List Prices Chucks	List Prices Extra Keys
255 *	0-1/4"	$6.00	$0.30
*318	0-5/16"	7.00	.40
381	10/32-1/2"	9.00	.40

*No. 318 has capacity sufficient to hold 3/8" small shank taps.

Designed for heavy duty; or light sensitive tap holding. — The front jaws rigidly and accurately hold the tap by the round portion of the shank, which is ground true to the thread. — The back jaws positively drive the tap by the square. — Every part of the chuck is in balance in relation to the tap spindle. — All parts are hardened and ground to insure long wear. — Arbor holes are interchangeable with standard Jacobs Drill Chucks.

THE JACOBS CENTER REST CHUCK

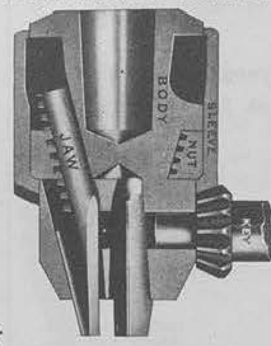
The Center Rest Chuck is mounted in the tail stock of the lathe, permitting the turning of round work without the use of a center. The stationary bronze jaws provide a bearing for the work which is turned. These jaws are adjusted by means of a sleeve, to the diameter of the work to be supported, and locked in place. This chuck replaces the lathe bed steady rest, is easier and more convenient to use, and has equal accuracy. It is conveniently mounted on the tail stock of the lathe by means of a taper arbor, which replaces the tailstock center.



Model No.	Capacity	List Price
100	1/4 3/4	$10.00

JACOBS PLAIN BEARING CHUCK

Light, balanced models for sensitive drilling. — Medium duty models for machine use and all portable tools. — Increased grip and faster operation assured by new methods of thread generation. — Increased strength of all parts due to new design, and the most modern heat treating methods. — All parts practically unbreakable. — Hardened body and stronger parts result in twice the wearing quality. — Moderately priced, and standard all over the world, this chuck will be found in dealers' stocks everywhere.



TAPER HOLE CHUCKS

Model No.	Capacity	List Prices Chucks	List Prices Extra Keys
Light Duty			
0	0-1/8"	$6.00	$0.30
1A	0-1/4"	4.50	.30
2A	0-3/8"	5.50	.40
33	1/16-1/2"	6.50	.40
6A-33	0-1/2"	7.50	.50
Medium Duty			
7	0-1/4"	$ 4.50	$0.30
30	0-5/16"	5.50	.40
32	0-3/8"	5.50	.40
34	0-1/2"	7.50	.50
3	0-17/32"	9.00	.50
3A	1/8-5/8"	9.00	.50
36	3/16-3/4"	12.00	.75

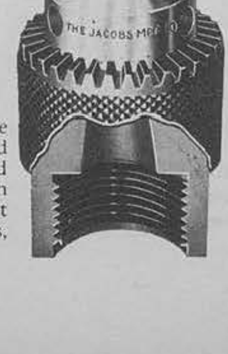
JACOBS PORTOMATIC CHUCK

Model No.	Capacity	List Prices
250	0-1/4"	$ 5.00
312	0-5/16"	6.00
375	0-3/8"	6.00
500	1/16-1/2"	10.00

Designed for portable drill use and machine drilling where the keyless or self-tightening feature is required. — Ball bearing, rapid in action, powerful, yet easily released by a slight twist of the knurled sleeve. — A tremendous grip which automatically tightens with increased load. — Hardened and ground throughout. — Perfect fit on all running parts. — Furnished in all standard tapers and threads, and interchangeable on all present Jacobs equipped spindles.

THE JACOBS HEADSTOCK CHUCK

Can be furnished to thread directly to the spindle of several small lathes. It is extremely accurate and convenient to use, replacing collet equipment, yet accomplishing the same results. A hole through the body permits the insertion of valves or other round work for grinding, etc. Furnished in the following models, and fitting the lathes mentioned.



Model No.	Thread	Capacity	List Price
58B	1 3/8" x 10	1/8 - 5/8"	$12.00
58B	1 3/8" x 8	1/8 - 5/8"	12.00
58B	1 1/2" x 8	1/8 - 5/8"	12.00
59B	1 1/2" x 8	3/16 - 3/4"	15.00
59B	1 5/8" x 8	3/16 - 3/4"	15.00
59B	1 3/4" x 8	3/16 - 3/4"	15.00
59B	1 7/8" x 8	3/16 - 3/4"	15.00

Parts Price List

The Jacobs Super Chuck (Ball Bearing)

Model No.	Keys	Jaws & Nuts per Set	Sleeves	Balls per Set
8½	$0.40	$2.25	$0.60	$0.30
9	.40	2.75	.75	.45
11	.40	3.00	.75	.45
14	.50	3.25	.90	.60
16	.75	4.25	1.20	.75
18	.75	5.25	1.50	.75
20	1.25	7.50	2.25	.90

The Jacobs Plain Bearing Chuck (Improved)

Model No.	Keys	Jaws & Nuts per Set	Sleeves
0	$0.30	$2.25	$0.60
1	.30	1.75	.50
2	.40	2.25	.60
3	.50	3.25*	.90
4	.75	5.25	1.50
5	1.25	7.50	2.25
6	.50	2.75	.90
7	.30	1.75	.50
30	.40	2.25	.60
32	.40	2.25	.60
33	.40	2.50	.60
34	.50	2.75	.90
36	.75	4.25	1.20
58	.50	3.25	1.25
59	.75	4.25	1.50
100	....	3.25	1.25

* No. 3 Jaws, 0—17/32" capacity; No. 3A, 0—5/8" capacity.

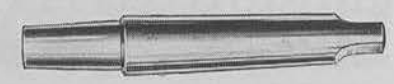
The Jacobs Portomatic Chuck (Keyless)

Chuck Model	Screws	Jaws per Set	Carriers	Collars	Balls per Set
250	$1.00	$1.25	$0.75	$0.50	$0.30
312	1.25	1.50	1.00	.50	.45
375	1.25	1.50	1.00	.50	.45
500	2.00	2.50	1.50	1.00	.60

The Jacobs Positive Drive Tap Chuck

Model No.	Front Jaws and Nuts per Set	Back Jaws	Front Sleeve	Back Sleeve	Key
255	$2.00	$1.00	$0.50	$0.50	$0.30
318	2.25	1.20	.60	.60	.40
381	2.50	1.40	.70	.70	.40

Arbors for Jacobs Chucks



Taper Arbors for Drilling Machine, Lathe, etc.

No. 1 and 2 Morse	$0.80
3 "	1.20
4 "	2.00
5 "	3.50
No. 7 Brown & Sharpe	2.00
No. 8 " "	3.00
No. 9 " "	5.00
10 " "	6.00
No. 5, 6, 7 and 8 Jarno	3.00

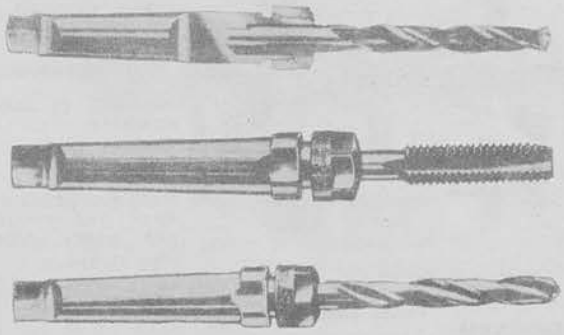
Hollow Taper Arbors for Lathes

No. 2 and 3 Morse	$4.00
4 and 5 "	6.00

Straight Shank Arbors for Blacksmiths' Drills, etc.

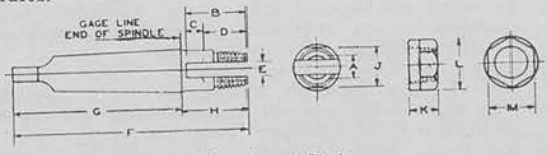
1/4" and 41/64" Straight Shank	$0.75

Jacobs Single Purpose Chucks
For Holding Straight Shank Tools



A moderately priced taper shank adapter for holding straight shank tools. Extensively used for high production drilling, reaming and tapping, where tool sizes are rarely changed.

Rugged two-piece construction, together with expert grinding and heat-treating, result in a chuck of long life and absolute accuracy. Powerful collet jaws grip the round of the tool shank, while the tang of the tool shank engages a socket in the chuck body, giving a positive drive. This chuck is tightened and released with a wrench, therefore there is no need for hammering on sensitive machine spindles.



Dimensions of Blanks

Morse Taper Shank Chucks

Model* No.	Each	Morse Taper Shank No.	F	G	H	J	K	L	M	† Largest Possible Capacity
A0	$4.00	0	3 5/16	2 7/32	1 3/32	9/16	1/2	23/32	5/8	1/8
FA0	3.50	0	3 5/16	2 7/32	1 3/32	9/16	1/2	23/32	5/8	1/4
A1	4.00	1	3 17/32	2 7/16	1 3/32	9/16	1/2	23/32	5/8	1/8
FA1	3.50	1	3 17/32	2 7/16	1 3/32	9/16	1/2	23/32	5/8	1/4
FB1	3.50	1	3 15/16	2 7/16	1 1/2	11/16	9/16	7/8	3/4	3/8
B2	4.00	2	4 1/8	2 15/16	1 3/16	11/16	9/16	7/8	3/4	1/8
FB2	4.00	2	4 1/8	2 15/16	1 3/16	11/16	9/16	7/8	3/4	3/8
FC2	4.00	2	4 7/8	2 15/16	1 15/16	7/8	5/8	1 1/8	1	9/16
FC3	5.00	3	5 1/8	3 11/16	1 7/16	7/8	5/8	1 1/8	1	9/16
FD2	6.00	2	5 1/8	2 15/16	2 3/16	1 1/8	3/4	1 7/16	1 1/4	3/4
FD3	7.00	3	5 11/16	3 11/16	2	1 1/8	3/4	1 7/16	1 1/4	3/4
FD4	7.00	4	6 1/2	4 5/8	1 7/8	1 1/8	3/4	1 7/16	1 1/4	3/4
FE3	10.00	3	6 1/2	3 11/16	2 13/16	1 3/4	7/8	2 1/4	2	1
FE4	10.00	4	7 3/8	4 5/8	2 3/4	1 3/4	7/8	2 1/4	2	1
FE5	10.00	5	8 3/8	5 7/8	2 1/2	1 3/4	7/8	2 1/4	2	1

Browne & Sharpe Taper Shank Chucks

Model* No.	Each	Brown & Sharpe Shank No.	F	G	H	J	K	L	M	† Largest Possible Capacity
FC7	$5.00	7	5 15/32	3 17/32	1 15/16	7/8	5/8	1 1/8	1	9/16
FC9	5.50	9	6 1/16	4 5/8	1 7/16	1	5/8	1 1/8	1	9/16
FC10	6.00	10	7 13/16	6 13/32	1 13/32	1	5/8	1 1/8	1	
FC11	7.00	11	8 7/8	7 15/32	1 13/32	1	5/8	1 1/8	1	
FD9	8.00	9	6 5/8	4 5/8	2	1 1/8	3/4	1 7/16	1 1/4	3/4
FD11	9.00	11	9 3/4	7 15/32	1 29/32	1 1/8	3/4	1 7/16	1 1/4	3/4
FE9	10.00	9	7 7/16	4 5/8	2 13/16	1 3/4	7/8	2 1/4	2	1
FE11	10.00	11	10	7 15/32	2 17/32	1 3/4	7/8	2 1/4	2	1

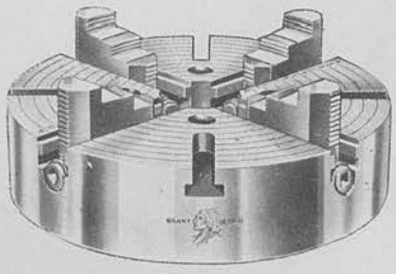
Extra Nuts

For Chuck Models	A&B	C	D	E
Each	$ .40	.50	.65	.85

*"F" preceding the model number indicates positive drive by flats, and is standard for all chucks over 1/8 capacity. All other models have collet type friction drive only.

†Each Single Purpose Chuck can hold only one sized tool. Therefore when ordering in addition to the **Model Number** specify the **Size** and **Type** of tool to be held, i.e.—Model No. **FA1** for 3/16" **Drills.**

BRANT-FORD CHUCKS



Made in Canada

4 Jaw Independent Iron or Steel Bodies

Made in Canada

Accuracy in construction.

Highest grade materials.

Built for precision work and endurance under excessive strain.

Some Distinctive Features:

DESIGNED
For precision work, severe service and continuous performance.

BODIES, NICKEL IRON
Made of highest grade, suitable for this purpose, almost unbreakable. Will hold up where others have failed, recommended for regular machine shop, and production work.

BODIES, STEEL
Of high tensile strength. The ideal body on heavy production work. Built to meet all requirements of modern high speed tooling for heavy cuts.

JAWS
All jaws are special alloy steel, hardened, interchangeable and reversible, perfectly aligned and precision ground after hardening.

SCREWS
Are of large diameter, extremely tough alloy steel with square threads cut entire length and housed in hardened steel double thrust bearings.

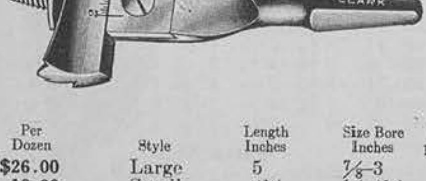
All Parts Interchangeable and Fully Guaranteed

Prompt Shipment from Stock

Special Alloy Steel Reversible Interchangeable Jaws

IRON BODY			STEEL BODY		
Size of Chuck Inches	Order by Numbers Below	Price Net Tax Paid	Size of Chuck Inches	Order by Numbers Below	Price
6	6-1	$25.50	6	6-S	$46.50
8	8-1	29.50	8	8-S	49.00
10	10-1	35.00	10	10-S	54.00
12	12-1	42.00	12	12-S	69.50
14	14-1	45.50	14	14-S	78.00
16	16-1	54.00	16	16-S	88.00
18	18-1	69.50	18	18-S	106.00
20	20-1	80.00	20	20-S	122.50
22	22-1	93.00	22	22-S	136.00
24	24-1	104.00	24	24-S	153.00

Clark Pattern Dowel Expansive Bits



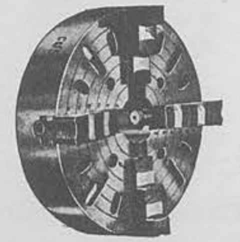
No.	Per Dozen	Style	Length Inches	Size Bore Inches	Wt., Lbs. per Dozen
11	$26.00	Large	5	7/8–3	4¾
12	18.00	Small	4½	½–1½	2

Extra Cutters

No.	Size Bore Inches	Per Dozen	No.	Size Bore Inches	Per Dozen
1	½–7/8	$3.00	4	1¾–3	$6.00
2	7/8–1½	3.75	5	3–4	9.00
3	7/8–1¾	5.25	.	....	...

Cushman Independent Lathe Chucks

4-Jaw—No. 14, Iron Body—No. 214, Steel Body

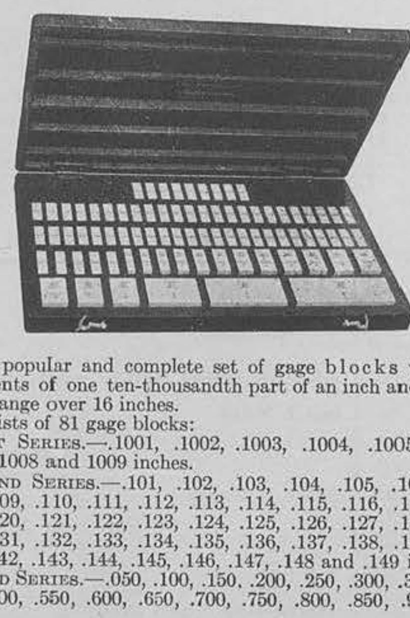


For general purpose lathes, as work of almost any shape, of a size that does not greatly exceed that of chuck, can be chucked in them. Bodies are either gray iron or cast steel, formed like a truss and practically unbreakable. Jaws are steel and are reversible, perfectly aligned with body ribs which are of unusual width and strength.

All surfaces are hard, and being ground to standard gauges, jaws are interchangeable with others of corresponding sizes.

Size Inches	No. 14 Iron Body Each	No. 214 Steel Body Each	Diameter Hole Inches	Diameter Recess Inches	Approx. Ship. Wt., Lbs.
4½	$27.00	......	1	4.118	10
6	32.00	......	1 9/16	5.618	18
8	37.00	$61.00	2	4.715	41
9	40.00	......	2	4.715	47
10	47.00	72.00	2½	5.618	67
12	56.00	91.00	3	6.666	87
14	61.00	104.00	3	6.666	106
15	67.00	112.00	3½	7.799	123
16	72.00	117.00	3½	7.799	127
18	93.00	141.00	4	9.509	220
20	107.00	163.00	4	9.509	246
22	124.00	181.00	4½	11.012	276
24	139.00	204.00	5	11.012	309
26	156.00	233.00	5	12.000	370
28	177.00	277.00	5	13.005	421
30	220.00	324.00	6	15.025	507
36	320.00	493.00	6	17.740	638

No. 1 Johansson Gage Block Sets



This popular and complete set of gage blocks will give increments of one ten-thousandth part of an inch and a maximum range over 16 inches.

Consists of 81 gage blocks:

First Series.—.1001, .1002, .1003, .1004, .1005, .1006, .1007, .1008 and 1009 inches.

Second Series.—.101, .102, .103, .104, .105, .106, .107, .108, .109, .110, .111, .112, .113, .114, .115, .116, .117, .118, .119, .120, .121, .122, .123, .124, .125, .126, .127, .128, .129, .130, .131, .132, .133, .134, .135, .136, .137, .138, .139, .140, .141, .142, .143, .144, .145, .146, .147, .148 and .149 inches.

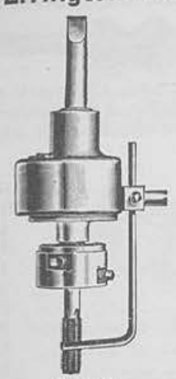
Third Series.—.050, .100, .150. .200, .250, .300, .350, .400, .450, .500, .550, .600, .650, .700, .750, .800, .850, .900, .950 inches.

Fourth Series.—1.000, 2.000, 3.000 and 4.000 inches.

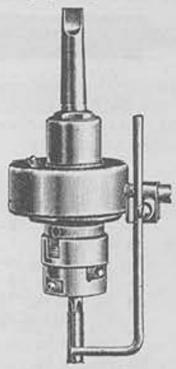
Will make .0001-inch sizes from .200 to over 12.000 in.

Price, No. 1-B, Working Set, in Case....... per set **$295.00**
Price, No. 1-A, Inspection Set, in Case..... per set **395.00**
Price, No. 1-AA, Laboratory Set, in Case... per set **1745.00**

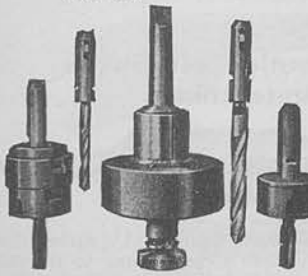
Errington Auto-Reverse Tapping Chucks



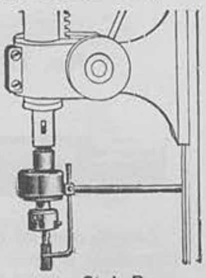
Style B
Positive Tap Holder and Stop



Style C
Graduated Friction Tap Holder and Stop



Style D-E
Positive Quick-Change Ball-Drive with Two Drill-Collets



Style B
Attached to Sensitive Drill Press

The Style B stop holds the work down while the clutches disengage. Where the work is easily handled and centered, the simplest form is recommended.

Only one hand is required to operate the Errington, leaving the other free to handle duplicate parts in bulk, by passing them between two parallel pieces, or other suitable fixture.

On a multiple spindle drill it is just the thing for drilling and tapping in one handling castings, jigwork, etc., on such work as typewriters, sewing machines, cash registers, etc.

Wherever the work is too heavy to center itself to the tap, and wherever the work is clamped down, the saving in time and the accuracy in fit and alignment secured by drilling, facing, tapping, and stud-setting in line are as great as those similarly obtained by the turret lathe work.

Tapping chucks require no reversing mechanism on drill press. The different styles are secured by inserting the duplex tap chucks desired, without changing steel spur quick-reverse gear.

Specify Style B, where the work is drilled and then re-handled and tapped.

Specify Style C, for tapping steel, copper, etc., wherever there is danger of breaking taps.

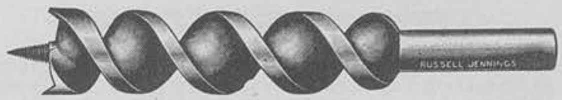
Specify Style D-E with quick-change tool-holders to drill, tap and set studs, etc., without moving work, or stopping or reversing machine. Individual friction adjustment in each tap-holder if required.

**Cone-Drive.

Size No.	Size Taps, In. Exact Size	Pipe Size	Morse Taper Shank No.	Style B Positive Tap-Holder and Stop Each	Style C Friction Tap-Holder and Stop Each	Style D-B Positive Quick-change Ball-Drive with Two drill-Collets (No Tap-Holder) Each
00**	0 to ¼	...	....	.....	$35.00	......
00 H.S.	Up to 3/16	...	Almond, 1	$25.00	30.00	......
00	1/16—5/16	...	1, 2	25.00	30.00	......
0	⅛—⅝	¼	3, 2, (1*)	30.00	35.00	$35.00
1	¼—¾	½	3, 4, (2*)	35.00	40.00	40.00
2	5/16—1	½	4, (3*)	40.00	50.00	50.00
3	⅝—1¼	1	4, (3*)	50.00	60.00	60.00
4	⅝—1½	1¼	5, 4	70.00	80.00	80.00
5	¾—2	2	5, (4*)	80.00	90.00	90.00

The first size of Morse Taper Shank given above for each size is the one regularly furnished; the other sizes can be furnished but the sizes marked (*) are too small to be used unless re-enforced by a set-screw.

Russell Jennings Extension Lip Machine Bits



Made of tool steel of uniform analysis. They are hardened by a special heat treating and tempering process.

These bits are ground to exact sizes and cutting edges will not wear quickly. All are made and carefully inspected by experienced bit makers before being shipped.

Size in 16ths	Price per Dozen — Length of Twist, Inches: 6	8	10	12	14	16
4	$10.80	$12.96	$15.12	$17.28	$19.44	$21.60
5	10.80	12.96	15.12	17.28	19.44	21.60
6	10.80	12.96	15.12	17.28	19.44	21.60
7	10.80	12.96	15.12	17.28	19.44	21.60
8	10.80	12.96	15.12	17.28	19.44	21.60
9	12.00	14.40	16.80	19.20	21.60	24.00
10	13.20	15.84	18.48	21.12	23.76	26.40
11	14.40	17.28	20.16	23.04	25.92	28.80
12	15.60	18.72	21.84	24.96	28.08	31.20
13	16.80	20.16	23.52	26.88	30.24	33.60
14	18.00	21.60	25.20	28.80	32.40	36.00
15	19.20	23.04	26.88	30.72	34.56	38.40
16	20.40	24.48	28.56	32.64	36.72	40.80
17	21.60	25.92	30.24	34.56	38.88	43.20
18	22.80	27.36	31.92	36.48	41.04	45.60
19	24.00	28.80	33.60	38.40	43.20	48.00
20	25.20	30.24	35.28	40.32	45.36	50.40
21	26.40	31.68	36.96	42.24	47.52	52.80
22	27.60	33.12	38.64	44.16	49.68	55.20
23	28.80	34.56	40.32	46.08	51.84	57.60
24	30.00	36.00	42.00	48.00	54.00	60.00
25	31.50	37.80	44.10	50.40	56.70	63.00
26	33.00	39.60	46.20	52.80	59.40	66.00
27	34.50	41.40	48.30	55.20	62.10	69.00
28	36.00	43.20	50.40	57.60	64.80	72.00
29	37.50	45.00	52.50	60.00	67.50	75.00
30	39.00	46.80	54.60	62.40	70.20	78.00
31	40.50	48.60	56.70	64.80	72.90	81.00
32	42.00	50.40	58.80	67.20	75.60	84.00
34	45.60	54.72	63.84	72.96	82.08	91.20
36	49.20	59.04	68.88	78.72	88.56	98.40
38	52.80	63.36	73.92	84.48	95.04	105.60
40	56.40	67.68	78.96	90.24	101.52	112.80
42	60.60	72.72	84.84	96.96	109.08	121.20
44	64.80	77.76	90.72	103.68	116.64	129.60
46	69.00	82.80	96.60	110.40	124.20	138.00
48	73.20	87.84	102.48	117.12	131.76	146.40
50	78.00	93.60	109.20	124.80	140.40	156.00
52	82.80	99.36	115.92	132.48	149.04	165.60
54	87.60	105.12	122.64	140.16	157.68	175.20
56	92.40	110.88	129.36	147.84	166.32	184.80

Standard shank for machine bits, up to and including 10-inch twist 2 inches long by ½ inch in diameter. On machine bits with twist 12 inches long we furnish ½-inch shanks up to 16/16. On sizes 17 to 23/16 inclusive, we furnish either ⅝-inch or ½-inch shank, and on sizes 25/16 and up they are ¾-inch, ⅝-inch or ½-inch. On bits with shanks larger than outlined above and on machine bits with twist over 12 inches long, special prices upon application.

No. 66 Greenlee Ship Augers

With Screw

Ship augers have a twist varying in length according to size, from 8 inch twist on the 4/16 and 5/16, 10 inch twist on the 6/16, 7/16 and 8/16, to 12 inch twist on the 9/16 to 1 inch, and 15 inch twist on larger augers. The overall length exceeds the twist by about 5 inches.

Size, Ins.	Price per Doz.	Size, Ins.	Price per Doz.	Size, Ins.	Price per Doz.
4/16	11.00	16/16	14.50	28/16	32.00
5/16	11.00	17/16	16.00	29/16	38.00
6/16	11.00	18/16	16.00	30/16	38.00
7/16	11.00	19/16	18.00	31/16	45.00
8/16	11.00	20/16	18.00	32/16	45.00
9/16	11.00	21/16	20.00	34/16	57.00
10/16	11.00	22/16	20.00	36/16	72.00
11/16	12.00	23/16	23.00	38/16	86.00
12/16	12.00	24/16	23.00	40/16	101.00
13/16	13.00	25/16	27.00	42/16	115.00
14/16	13.00	26/16	27.00	44/16	130.00
15/16	14.50	27/16	32.00	48/16	158.00

No. 68 Greenlee Ship Augers

Without Screw

No point ship augers have a twist varying in length according to size, from 8 inch twist on the 4/16 and 5/16, 10 inch twist on the 6/16, 7/16 and 8/16, 12 inch twist on the 9/16 to 1 inch and 15 inch twist on larger augers. The overall length exceeds the twist length by about 5 inches.

Size, Ins.	Price per Doz.	Size, Ins.	Price per Doz.	Size, Ins.	Price per Doz.
4/16	13.20	14/16	15.60	24/16	27.60
5/16	13.20	15/16	17.40	25/16	32.40
6/16	13.20	16/16	17.40	26/16	32.40
7/16	13.20	17/16	19.20	28/16	38.40
8/16	13.20	18/16	19.20	30/16	45.60
9/16	13.20	19/16	21.60	32/16	54.00
10/16	13.20	20/16	21.60	34/16	68.40
11/16	14.40	21/16	24.00	36/16	86.40
12/16	14.40	22/16	24.00	40/16	121.20
13/16	15.60	23/16	27.60	48/16	189.60

No. 22 Solid Center Auger Bits

A tool combining greatest strength with desirable qualities of free easy cutting and excellent chip clearance. The feature of this auger bit is the solid stem extending straight through the center from the screw point to the shank.

The solid center or stem makes a stiff, strong tool and provides good support for the base of the screw point.

Size in 16ths Inches	Price per Dozen	Size in 16ths Inches	Price per Dozen	Size in 16ths Inches	Price per Dozen	Size in 16ths Inches	Price per Dozen
3	$4.50	9	$5.50	15	$9.00	21	$13.50
4	4.00	10	6.00	16	9.00	22	13.50
5	4.00	11	7.00	17	10.50	23	15.00
6	4.00	12	7.00	18	10.50	24	15.00
7	4.50	13	8.00	19	12.00	28	19.00
8	5.00	14	8.00	20	12.00	32	23.00

No. 195 Greenlee Split Shank Countersinks

Has split shank ½x1½ inches and over all length of 4 inches. Sizes 1¼ inches and smaller as listed are carried in stock; larger sizes special. Prices do not include drills, which are sold separately.

Size In.	For Drills, Inches	Each
3/8	3/16	$4.00
1/2	1/8, 3/16, 7/32 or 1/4	4.00
9/16	7/32 or 1/4	4.25
5/8	3/16, 7/32, 1/4, 9/32 or 5/16	4.50
3/4	1/4, 9/32, 5/16 or 3/8	5.50
7/8	7/32, 1/4, 9/32, 5/16, 11/32 or 3/8	6.25
1	1/4, 9/32, 5/16, 11/32, 3/8	7.00
1 1/8	5/16, 11/32 or 3/8	7.75
1 1/4	5/16, 11/32 or 3/8	8.50
1 1/2	For Any Practical Size Drill	10.00

No. 198 Greenlee Split Shank Countersinks

Length over all 3 inches. Split shank ½x1½ inches. Cutting parts produce a bevel hole corresponding to the taper on head of a wood screw. Inside drill is adjustable for depth of boring and readily replaced if broken or worn out. Inside drill is sold separate.

Packed in bundles unless boxes are specified.

Size Inches	For Drills, Inches	Price Without Drill Each
1/2	1/8, 5/32, 3/16, 7/32, and 1/4	$3.00
9/16	7/32	3.25
5/8	9/32 and 5/16	3.50

No. 175 Greenlee Straight Shank Drills

Has 2½-inch twist, straight shank 3½ inches long, making length over all 6 inches.

Packed in bundles unless boxes are specified.

Size..... inches	1/8	3/16	7/32	1/4	9/32	5/16
Price, No. 175..... each	$.60	.65	.65	.65	.70	.75

No. 175½ Greenlee Straight Shank Drills

Has 2-inch twist, shank 2½ inches long, making length over all 4½ inches.

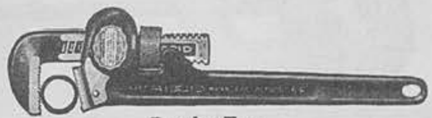
Packed in bundles unless boxes are specified.

Size..... inches	1/8	5/32	3/16	7/32	1/4	9/32	5/16
Price, No. 175½ ..... each	$.50	.50	.55	.55	.55	.60	.65

Order by Mail

It enables you to get the goods as you need them — PROMPTLY

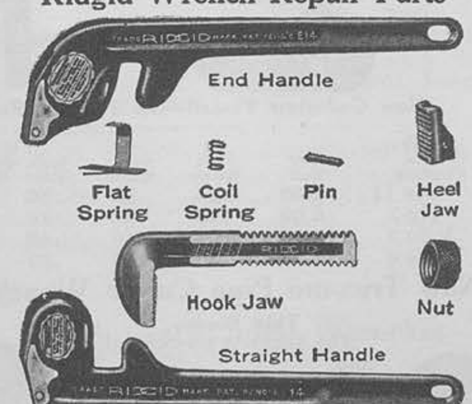
Ridgid Wrenches



Regular Type

Reg. Type...In.	6	8	10	12	14	18	24	36	48	60
End Type....In.	E6	E8	E10	E12	E14	E18	E24	E36	...	...
Cap. ....In.	¾	1	1½	2	2	2½	3	4½	6	8
Each	1.90	2.20	2.85	3.35	3.85	5.50	9.50	20.00	30.00	45.00

Ridgid Wrench Repair Parts



Size, Ins.	Straight Handle, Each	End Handle, Each	Strt. Hdle. Assembly Each	End Hdle. Assembly Each	Hook Jaw, Each	Heel Jaw, Each	Pin, Each
6	1.45	1.45	1.75	1.75	.65	.35	.03
8	1.70	1.70	1.95	1.95	.70	.40	.03
10	2.30	2.30	2.50	2.50	1.10	.50	.04
12	2.55	2.55	2.85	2.85	1.30	.60	.04
14	3.00	3.00	3.45	3.45	1.50	.60	.04
18	4.20	4.20	4.95	4.95	2.15	.70	.04
24	6.90	6.90	7.95	7.95	3.50	.80	.04
36	13.25	13.25	15.00	15.00	5.70	1.10	.05
48	20.50	....	25.00	....	9.00	2.00	.05
60	25.00	....	35.00	....	17.00	4.50	.05

Size, Ins.	Coil Spring, Each	Flat Spring, Each	Nut, Each	Size, Ins.	Coil Spring, Each	Flat Spring, Each	Nut Each
6	.03	.20	.15	18	.04	.40	.35
8	.03	.20	.15	24	.04	.50	.55
10	.03	.20	.20	36	.04	.60	1.10
12	.03	.25	.25	48	.04	.80	2.00
14	.03	.30	.30	60	.04	1.50	4.00

Ridgid Pipe Wrenches

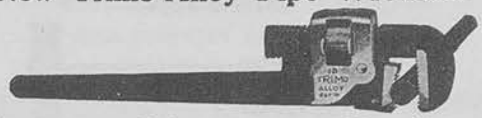
With Compound Leverage

Short handle and short turning movement permit use of these wrenches in close quarters too tight for ordinary wrenches—on concealed piping, close under floors, against walls or in narrow trenches.

Consists of a trunnion with teeth and a chain grip, and a housing connected to a handle no longer than a 36-inch wrench. Trunnion and wrench are separate.

No.	S-2	S-4	S-6	S-8
Pipe Capacity, Ins.......	2	4½	6	8
Each	8.50	17.00	22.00	33.00

New Trimo-Alloy Pipe Wrenches

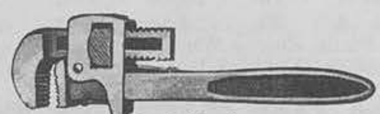


Length............Inches	6	8	10	12	14
Takes Pipe........ "	⅛–½	⅛–¾	⅛–1	⅛–1¼	¼–1½
Price, Steel Handled..Each	1.90	2.20	2.85	3.35	3.85
Wood Handled "	2.00	2.30	3.15	3.60	4.25
" Movable Jaws. "	.65	.70	1.10	1.25	1.50
" Nuts......... "	.15	.15	.20	.25	.30
" Insert Jaw and Pin......... "	.50	.55	.65	.75	.85
" Frame and Pin. "	.45	.55	.70	.75	.80
" Spring and Pin. "	.03	.03	.03	.03	.03
" Frame Pins, extra......... "	.03	.03	.04	.04	.04
" Jaw Pins...... "	.03	.03	.04	.04	.04
" Steel Handles.. "	1.00	1.15	1.60	1.80	2.20
" Wood Handles with Ferrules "	.23	.25	.30	.35	.36
" Nut Guards....Pair	.15	.15	.20	.30	.30

Length.............Inches	18	24	36	48
Takes Pipe......... "	¼—2	¼—2½	½—3½	1—5
Price, Steel Handled...Each	5.50	9.50	20.00	30.00
" Movable Jaws.. "	2.15	3.50	5.70	9.00
" Nuts.......... "	.35	.55	1.10	2.00
" Insert Jaw and Pin.......... "	.95	1.10	1.50	2.00
" Frame and Pin.. "	.95	1.75	2.75	3.50
" Spring and Pin.. "	.04	.04	.04	.04
" Frame Pins, extra "	.04	.04	.05	.05
" Jaw Pins....... "	.04	.04	.05	.05
" Steel Handles... "	3.25	5.15	10.50	17.00
" Nut Guards.....Pair	.35	.45	.55	.65

When Ordering, Specify Steel or Wood Handles.

Stillson Pipe Wrenches



Steel Handle

Red lacquered handle. Sizes 10 and 14 in. furnished with steel handle unless otherwise specified. Each size has single front spring; 10 to 24 in. inclusive has double back spring.

Length Open .....Inches	6	8	10	14
Takes Pipe.......... "	⅛—½	⅛—¾	⅛—1	¼—1½
Price, Steel Handled...Each	1.90	2.20	2.85	3.85
" Wood Handled... "	2.00	2.30	3.15	4.25
" Bar with Spring.. "	1.00	1.15	1.60	2.20
" Jaws........... "	.65	.70	1.10	1.50
" Frame and Pins.. "	.45	.55	.70	.80
" Frame Pins only.. "	.03	.03	.04	.04
" Adjusting Nuts.. "	.15	.15	.20	.30
" Wood Handles and Ferrules....... "	.23	.25	.30	.36
" End Nuts....... "	.15	.15	.20	.20
" Spring, Front.... "	.10	.10	.10	.10
" Springs, Back....Pair	....	....	.20	.20
" Spring Pins or Rivets........Each	.01	.01	.02	.02

Length Open ......Inches	18	24	36	48
Takes Pipe.......... "	¼—2	¼—2½	¼—3½	1—5
Price, Steel Handled...Each	5.50	9.50	20.00	30.00
" Bar with Spring.. "	3.25	5.15	10.50	17.00
" Jaws........... "	2.15	3.50	5.70	9.00
" Frame and Pins.. "	.95	1.75	2.75	3.50
" Frame Pins only. "	.04	.04	.05	.05
" Adjusting Nuts.. "	.35	.55	1.10	2.00
" Spring, Front.... "	.10	.11	.13	.13
" Springs, Back....Pair	.20	.22	....	....
" Spring Pins or Rivets........Each	.02	.02	.02	.02

Three-Wheel Pipe Cutters

(Barnes Type)

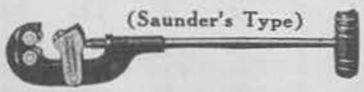
These pipe cutters are made of the best materials. Knife blade cutter wheels are made from special alloy. Parts are interchangeable with other standard makes. Fully guaranteed.

No.	Cuts Pipe, Inches	Weight Pounds	Price Each	Wheels Each	Pins, per Dozen
1B	⅛– 1	3	4.50	.50	1.00
2B	½– 2	5	6.00	.60	1.00
3B	1½– 3	9	10.00	.80	1.00
4B	2½– 4	14	20.00	1.00	2.00
5B	4 – 6	23	30.00	1.10	2.00
6B	6 – 8	28	40.00	1.10	2.00
6½B	8 –10	34	45.00	1.10	2.00
7B	9 –12	51	50.00	1.10	2.00

Knife Blade Cutter Wheels furnished unless otherwise specified. Knurled Wheels take the same list.

Roller Pipe Cutters

(Saunder's Type)



The roller style of pipe cutter is suitable only for work where the cutter can be revolved entirely around the pipe. Has ample size in all cross sections and is strong and rigid.

No.	Cuts Pipe, Inches	Weight Pounds	Price Each	Wheels Each	Rolls Each	Pins Each
1S	⅛–1	3	3.00	.50	.24	.10
2S	1 –2	6	4.50	.60	.32	.10
3S	2 –3	11	11.00	1.10	.50	.15
4S	2½–4	15	18.00	1.10	.50	.15
5S	4 –6	23	28.00	1.10	.60	.15

Knife Blade Cutter Wheels furnished unless otherwise specified. Knurled Wheels take the same list.

Price List RIDGID Tubing Cutters and Parts

PATENT NO. D97 513

Tubing Cutters No. 00 and 0

Size	No. 00	No. 0
Capacity (OD)	⅛″ to 1″	½″ to 2″
Weight	6½ oz.	1½ lbs.
List Price	$1.75	$3.50
Cutter Wheel	.25	.25
Pin and Clips	.10	.10
Frame	.60	1.90
Saddle, each	.25	.35
V-Pad	.10	.20
Screw Handle	.30	.50

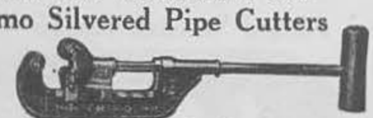
Ridgid Pipe Cutters

Many more quick clean cuts because made with special tool-steel blade cutter wheeel, not made from bar stock but coined from alloy sheets, hammered, heat-treated and assembled in a solid hub. Cutter frames internally reinforced, will not break or warp. Cut true.

No.	Capacity Ins.	Each Complete	Blades, per Doz. Solid	Blades, per Doz. Old Style	Each: Sleeve Nut	Frames	Screw & Handle	Roll H's'g	Rolls	Pin & Clips
1	⅛-1¼	4.00	*6.00	3.00	.40	2.25	1.25	1.25	.30	.20
2	⅛-2	6.00	*6.00	3.00	.40	2.50	1.60	1.25	.30	.20
3	1-3	10.00	12.00	3.50	.60	3.25	3.00	2.50	.60	.30
4	2-4	20.00	12.00	3.50	.60	6.00	4.00	4.50	.60	.30

*New Heavy Duty Blades furnished at same price.

Trimo Silvered Pipe Cutters



Now Cadmium Plated—To Prevent Rust

No.	Cuts Pipe Inches	Price Each	Price, Each: Extra Wheels	Extra Rollers	Extra Nuts	Extra Handles only, without Screw Rod
1	⅛ to 1¼	5.00	.60	.30	.35	.50
2	⅛ to 2	6.00	.60	.30	.35	.50
3	1 to 3	10.00	.90	.40	.40	.50
4	2½ to 4	20.00	1.20	.40	.60	.60

New Tricome Pipe Cutter Wheels

Thin Blades

Smooth Edge

The Silver Wheel with the red hub.

To fit Barnes, Saunders, Crown or Trimo Pipe Cutters.

Made of chrome vanadium tool steel.

Smooth edge and tooth edge wheels have same list price.

Tooth Edge

	Nos. 1	2	3	4	5	6-6½-7
Wheels						
Trimo (made to fit)....Each	.60	.60	.90	1.20	...	...
Barnes (made to fit....Each	.50	.60	.80	1.00	1.10	1.10
Saunders (made to fit).Each	.50	.60	1.10	1.10	1.10	...
Crown (made to fit)....Each	.60	.80	1.10	...	...	...
Pins						
Trimo (made to fit).....Doz.	1.30	1.30	1.30	2.00	...	...
Barnes (made to fit)....Doz.	1.00	1.00	1.00	2.00	2.00	2.00
Saunders (made to fit)..Doz.	1.20	1.20	1.80	1.80	1.80	...
Crown (made to fit).....Doz.	1.50	1.50	1.80	...	...	...
Rollers						
Trimo (made to fit)....Each	.30	.30	.40	.40	...	...
Saunders (made to fit).Each	.24	.32	.50	.50	.60	...
Crown (made to fit)....Each	.24	.30	.50	...	...	...

Note—All wheels are marked on hubs as to name and size of cutter.

Nye Cutter Wheels and Pins

Smooth Edge Wheels

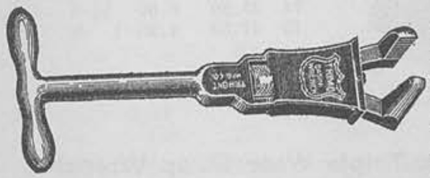
Knurled Edged Wheels

No.	Barnes: Wheels Each	Barnes: Pins per Doz.	Saunders: Wheels Each	Saunders: Pins per Doz.	Nye: Wheels Each	Nye: Pins per Doz.	To Fit Trimo: Wheels Each	To Fit Trimo: Pins per Doz.	To Fit Rigid: Wheels Each	To Fit Rigid: Pins per Doz.
1	.50	1.00	.50	1.20	.70	1.20	.60	1.20	.60	1.20
2	.60	1.00	.60	1.20	.80	1.80	.60	1.20	.60	1.80
3	.80	1.00	1.10	1.80	...	...	.90	1.80	.90	...
4	1.00	2.00	1.10	1.80	...	...	...	...	...	...
5	1.10	2.00	1.10	1.80	...	...	...	...	...	...
6	1.10	2.00	...	...	...	...	...	...	...	...

Parmelee Pipe Wrenches

Grips with equal pressure all around the pipe, which prevents crushing.

Trimo Basin Wrenches



This wrench can be used in closer quarters than any other wrench of its kind. Can be operated with one hand. Parts interchangeable. Weight, 1⅞ pounds. Length, 10 inches. Opens 1¾ inches.

Trimo Basin Wrench	per Dozen	**15.00**
Extra Jaws	Each	**.50**
" Screws	"	**.20**
" Nuts	"	**.20**
" Springs	"	**.10**

Nye Closet Spud Wrenches

Openings 1¼x1½ in. or 1¾x2 in. A light handy tool for the plumber, strong enough to stand any strain while in use.

Price, Closet Spud Wrench..............Each **1.00**

Nye Union Valve-Nipple Wrenches

Made so that when inserted in radiator union valve it catches the nipples at the base, avoiding the danger of mashing them. Takes sizes from ⅜ in. to 2 in. incl.
Price, Union Valve-Nipple Wrenches......Each **1.50**

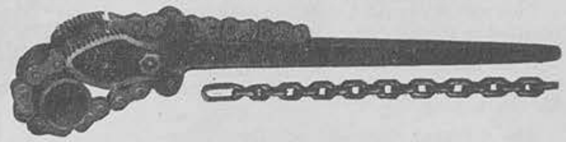
Nye Nipple Wrench Ratchet Handles

A time and labor saving tool for the steamfitter. For use in connection with the Nye Union Valve-Nipple Wrench. Enables the operator to get into tight corners.

Price, Handle complete with Nipple Wrench. Each **7.50**
" Ratchet Handle only.............. " **6.00**

Trimo Chain Pipe Wrenches

With Flat Link or Cable Chains



Trimo Chain Wrench is interchangeable in all its parts. Both handlė, and jaws are drop-forged of selected steel. The handle being of bar construction, is designed to give the greatest strength with the least weight. The chains are tested as to strength. Unless otherwise specified, the flat-link chain will always be sent.

No.	Capacity Size Pipe Inches	Length Over All In.	Length Chain Inches Flat Link	Length Chain Inches Cable	Average Breaking Strength, Pounds Flat Link	Average Breaking Strength, Pounds Cable	With Flat Link or Cable Chain Price Each
10	⅛ to 1	14	10	11	3500	1200	**$5.00**
11	⅛ " 2	21	15½	16½	7000	4000	**7.00**
12	¼ " 3	27	19¾	21½	10000	6000	**10.00**
13	¾ " 4	36	24¾	25	12000	10500	**14.00**
13½	1 " 6	44	31¼	32	14000	12000	**18.00**
14	1½ " 8	51	37½	39	16000	15000	**22.00**
15	2 " 12	65	51	53	22000	19000	**36.00**
16	2 " 16	78	65½	69	30000	28500	**66.00**

Repair Parts

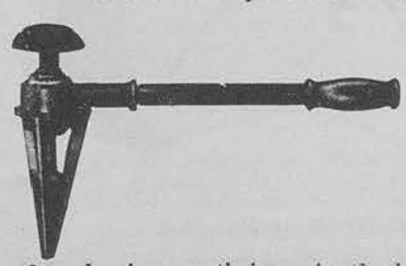
No.	Price, Each Flat Link Chain	Price, Each Cable Chain	Price per Pair Jaws	Price, Each Jaw Bolts and Nuts	Price, Each Chain Bolts and Nuts
10	$1.50	$1.50	$2.00	$.40	$.40
11	2.00	2.00	3.50	.50	.50
12	3.00	3.00	5.50	.70	.70
13	5.00	5.00	8.00	.90	.90
13½	7.00	7.00	9.50	1.10	1.10
14	9.00	9.00	11.00	1.40	1.40
15	15.00	15.00	15.00	1.80	1.80
16	30.00	30.00	24.00	2.80	2.80

Williams Improved Vulcan Drop-forged Chain Pipe Wrenches

With Flat Link Chain

No.	Takes Pipe, In.	Lgth. In.	Wt. Lbs.	Price, Complete, Each	Price, Extra Chains, Each	Price, Extra Jaws, per Pr.
30	⅛ to ¾	13¾	1¾	$5.00	$1.50	$2.00
31	⅛ " 1½	20	5¾	7.00	2.00	3.50
32	¼ " 2½	27	10	10.00	3.00	5.50
33	¾ " 4	37	16	14.00	5.00	8.00
33½	1 " 6	44½	24	18.00	7.00	9.50
34	1½ " 8	50½	31	22.00	9.00	11.00
35	2 " 12	64½	50	36.00	15.00	15.00

Mueller Pipe End Reamers



Pipe cutters leave a burr which reduces pipe area. The ends must be reamed after cutting if the full carrying capacity is to be retained. The ratchet is so constructed that the strain is divided into half a dozen bearings, greatly increasing the durability of the tool.

Price, Ratchet Pattern, Reams Pipe ⅜ to 3 Inches.................................. each **$7.04**

Williams Vulcan Drop Forged Chain Pipe Vises

This vise is compact, rapid in action and positive in grip.

It is made entirely of wrought steel with drop-forged jaws, saw tempered for file sharpening.

The different sizes are equally serviceable upon and suitable for fastening to bench or post.

No	Cap. Pipe In.	Approx. Size Folded In.	Approx. Wt. Lbs.	Price Complete Each	Price, Extra Parts, Each: Jaws per Pr.	Chain with Screws	Screws	Handle with Nuts	Nuts
1	⅛–2	4x5x6	4	$7.00	$3.00	$2.50	$.80	$2.20	$1.40
2	¼–4	6x8x8	10	15.00	7.00	4.80	1.40	4.20	2.70
3	¼–6	8x9x11	18	27.00	12.00	9.00	2.50	7.00	4.00
4	¼–8	8x10x12	30	36.00	18.00	12.00	2.50	7.00	4.00

Williams' Vulcan Superior Chain Pipe Vises

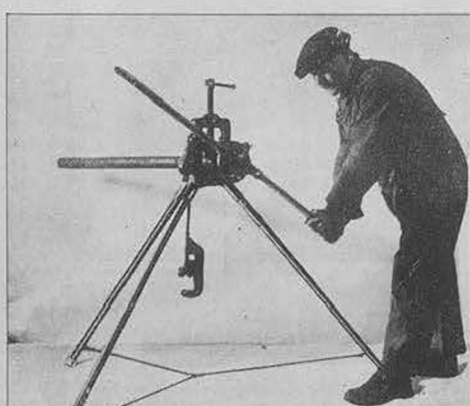
Drop-Forged

Handle is on top where it is easy to operate. Jaws are reversible—unscrew bolts and turn them over when teeth wear. Each vise takes pipe ½ inch larger than other chain vises of similar size. Wrought steel, chrome-plated or standard finish.

No.	For Pipe Sizes, In.	Wt. Lbs.	Vise Complete Chrome	Vise Complete Std.	Jaws, Pair Chrome	Jaws, Pair Std.
11	⅛ to 2½	7	$12.00	$10.00	$4.00	$3.30
12	¼ to 4½	15	22.00	19.00	9.00	7.70

No.	Chain Only Chrome	Chain Only Std.	Screw Chrome	Screw Std.	Handle & Screw Chrome	Handle & Screw Std.	Chain Arm Chrome	Chain Arm Std.
11	$2.20	$2.00	$1.15	$1.00	$2.80	$2.35	$1.40	$1.20
12	4.00	3.60	1.65	1.45	4.15	3.50	2.25	1.85

McCloskey Portable Vise Stand



Capacity ¼" to 2½" pipe.

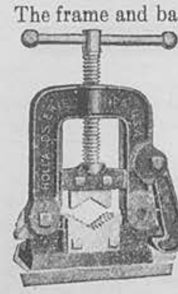
This sturdy Vise and Stand comes complete with ¾" legs, with Rubber Feet, and guy wires. Total weight only 30 pounds. Easily carried, legs clamp in jaws and guy wires slip in legs. **$20.00**

Armstrong Bros. Standard Pipe Vises

Cadmium Finish

This vise is automatic locking and combines convenient weight with strength and quick action.

The frame and base are made of certified malleable iron.



Jaws are tool steel, carefully milled, hardened, tempered and tested.

No.	Each	Ex. Jaws per Set of 3	Holds Pipe In.	Wt. Lbs.
70	4.25	1.75	⅛–2	7½
71	5.00	1.75	⅛–2½	10
72	7.50	2.50	⅛–3½	16
73	11.00	3.50	⅛–4½	25
74	23.50	6.00	⅛–6	49
75	47.50	8.55	1 –8	81

Warnock Triple Wear Strap Wrenches

For brass and nickel-plated pipe.

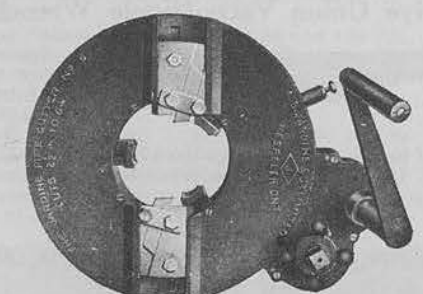
Has flexible woven strap which is the only contact with the pipe. Tensile strength of strap is 2000 pounds.

Curved nose will not crush the pipe. When free from strain, swinging shackle gives double opening, making Warnock the quick strap wrench.

A strongly made, practical wrench; will last indefinitely.

Length	inches	12	18
Pipe Complete	each	$2.50	$5.00
Extra Straps	each	.50	1.00
Takes Pipe	inches	⅛ to 2	1 to 5

Jardine Patented Pipe Cutters

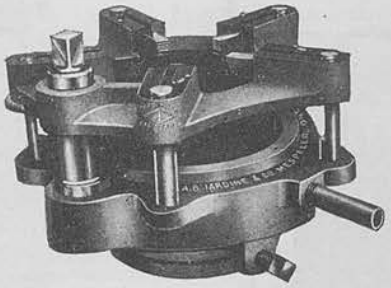


No. 6

Has square ends without any burr, which makes the setting and operation of the threading tool much easier.

No. 4	Capacity 2½" to 4" pipe. List Price, **$100.00.**
No. 6	Capacity, 2½" to 6" pipe. List Price, **$170.00.**
No. 8	Capacity 4" to 8" pipe. List Price, $240 00.
No. 60	Capacity, 2½" to 6" pipe. List Price, $199.00

Jardine Geared Adjustable Ratchet Pipe Threading Tools



No.	2½	*2½A	3	4
Each	$230.00	200.00	300.00	500.00
Capacity....in.	2½ to 6	4½ to 6	4½ to 8	9, 10, 12
Shipping Weight .....lbs.	200	160	245	385

*The No. 2½A tool is the same tool as No. 2½, without dies and bushings from 2½ to 4 inches, and is intended to fit the needs of those who already have a No. 2 tool and want threading capacity 2½ to 6 inches.

Die Cutters, complete set, 2½" to 6".....$84.00
Die Cutters, complete set, 4½" to 6".....36.00
Die Cutters, single set.....12.00

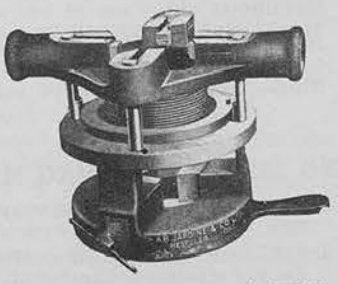
No. 12 Jardine Improved Threading Tools

Capacity, 1 to 2 Inches

Standard design with important improvements.

Self centering chuck holds tool rigidly central on pipe. Hole in chuck body large enough to pass 2-inch coupling, short nipples 2 inches are easily threaded.

Shipping weight, 17 pounds.



No. 12.....each **$28.00**
Extra Dies, 4 Cutters.....per set **2.50**

No. 12A Jardine Adjustable Ratchet Pipe Threading Tools

Equipped with self centering chuck to hold tool central on pipe. No loose bushings. Threading may be done in ditches or close to walls or ceilings.

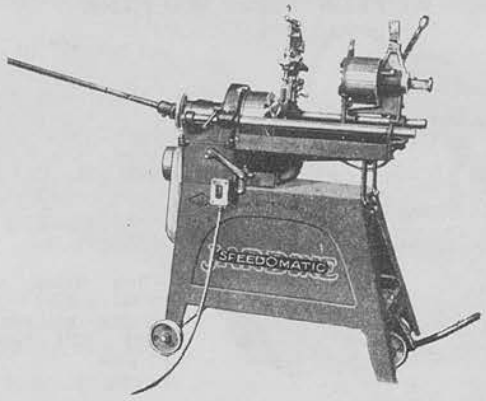
May be used with 2 handles as an ordinary stock, or with one handle as a ratchet stock.

Equipped with one pair of handles, one set of right hand dies each, 1, 1¼, 1½, 2 inches.

Capacity 1 to 2 inches right hand. Net weight 19½ pounds, shipping weight 21 pounds.

No. 12A.....each **$34.40**

"JARDINE" "SPEED-O-MATIC" PIPE MACHINE



"SpeedOmatiC" ½" to 2" complete, with Grinder

Floor space 27" by 36".

With Universal Motor, reversible, 110 volt.....**$520.00**
With ¾ H.P. Motor, reversible, 25 or 60 cycle.....**513.00**
With Gasoline Engine.....**525.00**
Universal Extension Shaft, to operate tools 2½" and larger **25.00**

Weight 470 lbs. Shipping weight, crated, 560 lbs.

Jardine Speed-O Portable Power Drives

Designed to operate hand pipe threading and pipe cutting tools up to 8 inches, and will do the work in less than one-quarter of the time of operating the tools by hand.

With this machine, one man can cut off, thread, and ream ½-inch pipe in 34 seconds, 1-inch pipe in 40 seconds, and 2-inch pipe in 68 seconds.

When reaming pipe 2 inches and smaller, the pipe revolves and the operator has only to hold the reamer to the work.

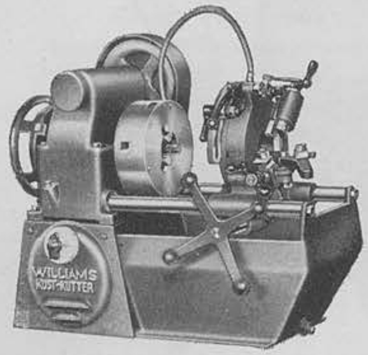
Floor space, 30x37 inches.

Shipping weight, 370 pounds.
With Universal Motor, Reversible, 110-Volt...each **$328.50**
With ¾ H.P. Motor, Reversible, 25 or 60-Cycle each **319.00**
With Gasoline Engine.....each **331.00**
Universal Extension Shaft, to Operate Tools 2½ Inches and Larger.....each **25.00**

The gasoline engine is not separate from the machine, but is built in the Speed-O in the same position as the electric motor and is an integral part of the machine.

The universal motor operates from a light socket on either d.c. or 25 or 60-cycle a.c. 110-volt. It is of variable speed and automatically gives the proper speed for threading each size of pipe.

THE NEW WILLIAMS PORTABLE KOST KUTTER PIPE MACHINE



Made in Canada

From ⅛″ to 2″ Pipe,
Bolt Dies Extra

Embracing the three essentials—Portability, Performance, Price.

Weight only 275 lbs.

When using universal shaft and driving to geared stock will thread 4″ pipe.

Some Distinctive Features:

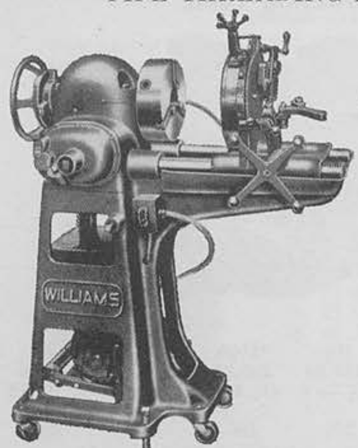
Extreme Portability. Fabricated steel base. New type die head, quick cutting off and reaming attachment. Reversible oil pump, flexible oil hose direct to dies. Geared scroll chuck on front. Rugged scroll chuck on rear. Motor enclosed in separate compartment in base.

Machine complete with motor R. H. dies ½″ to 2″, cutting off tool, reaming attachment, etc.	**$390.00**
Extra pipe dies special ⅛″ to ⅜″ per set	**$ 8.10**
Extra pipe dies regular R. H. per set	**$ 7.00**
Bolt dies per set	**$ 8.10**
Universal shaft for driving geared die stock	**$ 27.00**
Nipple chuck only. Capacity ¼ to 2″ less threader adapters	**$ 21.00**
Threaded adapters ¼ to 2″. 1. to a size each	**$ 3.00**

The ideal machine for the plumber and for maintenance work.

A product of the Williams Tool Corporation of Canada Ltd. makers of fine machines and tools for almost half a century.

THE WILLIE WILLIAMS PORTABLE PIPE THREADING MACHINE



Made in Canada

Capacity ¼ to 2″
Weight 550 lbs.

Very popular with the plumbers. Belt motor or gasoline engine drive, is sturdy, speedy and accurate, the machine may be equipped with bolt dies to thread ⅜ to 1½″ bolts and with nipple holders for threading nipples. This machine has two changes of speed through heat treated gears running in oil and operator may thread up to 8″ pipe by driving power machine through a universal shaft to geared die stock. In this way a 4″ pipe may be threaded in 2½ minutes and an 8″ pipe in 7½ minutes.

Some Distinctive Features:

The Die Head is Williams standard quick opening type controlled by patent micrometer adjustment.

The Cut off is operated by ball and crank handle and screw with high speed double bevelled tool very rapid.

Reaming Chamfer neck with lever control ⅜″ square high speed tool bit.

Chucks—Front Gripping Chuck is standard three jaw universal self-centering with three operating positions for wrench. Rear chuck is self centering three jaw scroll type.

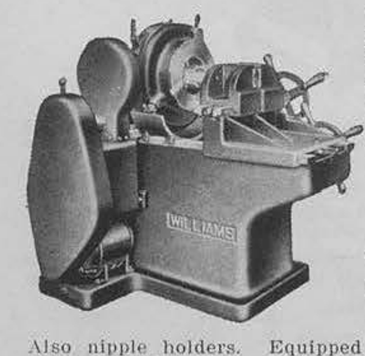
Oil Pump—Standard Rotary Reversible, geared oil pump. Gear driven giving ample lubrication.

Die Grinding Attachment—5¾″ dia. by ¾″ face emery wheel mounted on high speed shaft.

Prices

Machine complete with motor, R.H. Pipe Dies to capacity of machine, grinding attachment, cutting off and reaming attachment	**$526.00**
Machine as above except without motor	**456.00**
Machine as above except belt drive	**445.00**
Special pipe dies or bolt dies per set	**8.10**
Extra pipe dies, right hand per set	**7.00**
Universal shaft	**27.00**
Nipple holders complete	**110.00**

NEW WILLIAMS ROTARY PIPE AND BOLT THREADING MACHINE



Compact and rugged
This machine is ideal for threading bent pipe and is very popular in factory, mine, railroad or plumbing shop.

Manufactured in 4 different sizes ranging from No. 4 with capacity 1 to 4″ pipe to the largest size No. 12, having capacity 4 to 12″ pipe.

Special dies for threading bolts or smaller pipe than regular capacity can be furnished at slight extra cost. Also nipple holders. Equipped as desired, ready for motor, belt drive or complete with motor.

Distinctive Features:

CONSTRUCTION. Massive, capable of continuous performance under adverse conditions. Compact, taking up very small floor space.

OPERATION. Simple, quick and positive. No training required to operate.

THREADING. Pipe or bolts, bent or straight, any length, long or short thread, over or under-sized as desired.

DIE HEAD. Our newest design and made of nickle iron, using odd number of chasers to eliminate chatter and wave. Producing clean, smooth threads. Opens and closes while machine is in operation. Graduation marks on face plate for easy and accurate setting of dies.

DIES. Semi High Speed or High Speed Steel. Designed for the maximum number of perfect threads, requiring the minimum expense in resharpening.

DIE CONTROL LEVER. Located on outside of head, giving quick control and adjustment of dies.

AUTOMATIC CUT-OFF. Located in the head, and fitted with bevelled high-speed steel cut-off tool—insuring a clean cut, with no ragged edges.

OPEN TYPE VISE. An improved design, with long, firm gripping surface. Rugged, easy and quick to operate. Special grips can be supplied for threading nipples or special bolts, etc.

GEARS. All gears of high grade material, accurately machined to give the maximum in continuous and quick performance.

GEAR BOX. Modern design, in every respect. All gears run in oil and are of hardened steel. All bearings are self-lubricating. Alloy steel shafts with ground fits throughout. Three speed changes, lever control.

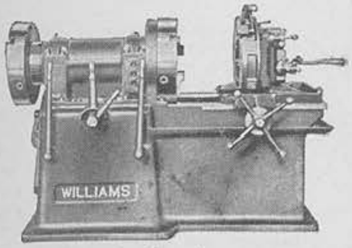
OIL PUMP. Improved Rotary Reversible. Carrying even flow to dies and cut off at all times. Large screened reserve provided.

WILLIAMS ROTARY MACHINES can be supplied, either belt or motor drive, or without gear box, and equipped with cone pulley.

Prices and complete bulletin on application owing to numerous sizes, drives, special dies or other equipment that may be desired.

WILLIAMS RAPIDUCTION PIPE THREADING MACHINE

The last word in Pipe Threading Machine Refinements Designed for Production Work



Made in Canada

Manufactured in nine different sizes ranging from No. 2 with capacity ¼ to 2″ pipe, to the largest size No. 24, having capacity 12 to 24 pipe.

Special dies for threading bolts or smaller pipe than regular capacity can be furnished at slight extra cost. Also Nipple Holders.

This machine is equipped with our famous Williams High Production Die Head, standard or receding. U. S. and foreign patents pending.

Equipped ready for motor, belt drive or complete with motor.

AMONG THE DISTINCTIVE FEATURES ARE

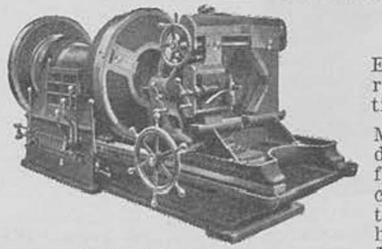
1—One Die Head covers the complete range.
2—High Speed Chasers used only.
3—Only two sets of Chasers required to cover range.
4—Not necessary to change Chasers except for different pitch threads.
5—All Chasers are interchangeable. One or more Chasers can be replaced without renewing entire set.
6—One or more holders can be removed instantly.
7—Die Head opens to allow all couplings to pass.
8—Quick opening lever handle on die head with micrometer adjustment.
9—Head has Special Cascade Oiling System.
10—Six streams deliver oil on chaser bits at once.
11—Die Head is separate unit. Fitted with T slides.
12—Single pulley drive.
13—5 horsepower friction clutch on machine.
14—Dual control clutch lever for stop and start.
15—Six speeds—Controlled by two gear shift levers.
16—Gear box self contained on rear of machine.
17—All gears steel hardened, running in oil. Bearings Bunting Bronzed Bushed.
18—Main bearings self-oiling fed with endless chain.
19—Carriage hand wheel travels with carriage.
20—Double centering V's with hardened steel plates.
21—Cut off tool, double bevel high speed. Reamer and chamfering tool high speed.
22—Tool tray, convenient, also wrench for chucks.
23—Chucks—Three jaw universal with three positions for chuck wrench. Rear chuck with flange jaws.
24—Belt drive machine can be converted to motor drive at small extra cost
25—Motor mounted in base of machine with silent chain drive.
26—Pump—Rotary geared, direct driven. Reversible
27—Chip chute operated by handle on front of machine.
28—Oil reservoir in base is removable. Three strainers.
29—Pulley, sprocket and gears protected with guards.

SPECIAL—RECEDING DIE HEAD—EXTRA

1—Narrow Chasers—Reduce friction and power. Increases the life and efficiency of Chaser Bits, Head and Machine.
2—Any length of thread or taper may be cut without reference to the width of Chaser Bit or Die.
3—The Chaser bits automatically recede as the thread is produced.
4—Perfect length of all threads is determined by graduations on dial, operating on carriage hand wheel shaft.

Prices and complete bulletin on application owing to numerous sizes, drives and special dies or other equipment that may be required.

WILLIAMS DUPLEX IMPROVED PIPE THREADING MACHINE


Made in Canada

Heavy Duty Construction

Economical upkeep, rapid production, continuous performance.

Manufactured in three different sizes, ranging from No. 8 with capacity 2½ to 8″ pipe to the largest size No. 12, having capacity 4 to 12″ pipe.

Equipped as desired, ready for motor, belt drive or complete with motor.

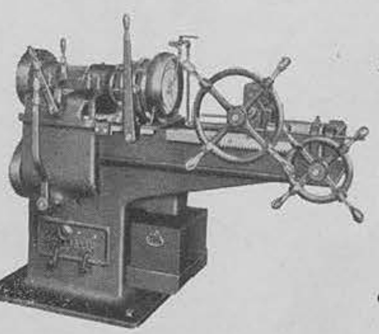
Some Distinctive Features of this Machine are:

1—Massive construction for heavy duty.
2—Low down sliding Die Head.
3—Micrometer adjustment for dies.
4—Die cabinet and tool tray.
5—Cutting off tool is of knife shape and of high speed steel.
6—Reaming attachment of latest type.
7—Chucks front and rear of identical design, latest type.
8—Spindle has 8 changes of speed.
9—All change gears in gear box are of steel machine cut and run in bath of oil.
10—Rotary, reversible oil pump, with large reservoir, nipple holders for close and short nipples can be supplied if desired.

Prices and complete bulletin on application owing to numerous sizes, drives and special dies, or other equipment that may be desired.

WILLIAMS RAPIDUCTION BOLT THREADING MACHINES

Single, Double and Triple Head
In two sizes—1½ and 2.


Made in Canada

Equipped either with Improved Rapiduction Die Head or with Tangential Head as desired.

This machine is designed for rapid production. Has alloy steel heat treated gears revolving in oil. Has eight speed changes.

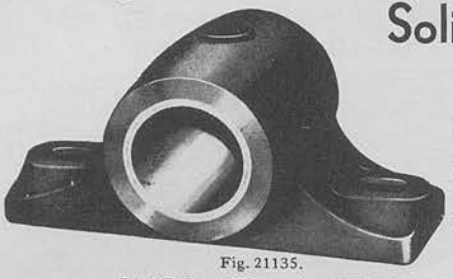
Friction clutch, Rotary Reversible Oil Pump and many other distinctive features—Either belt or direct connected motor drive.

Machine No.	1½	2
Capacity of machine for bolts	⅜ to 1½″	½ to 2″
Capacity of machine for pipe	¼ to 1¼″	⅜ to 2″
Length of thread cut in on setting	15	15

Eight spindle speeds. 31 to 197—R.P.M.

Prices and complete bulletins on application.

Solid Journal Bearings



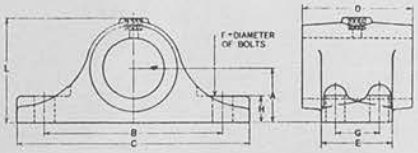


Fig. 21135.

List Prices, Dimensions in Inches, and Average Weights in Pounds

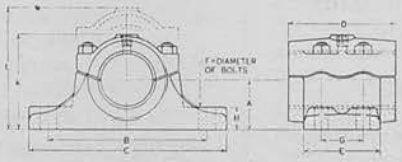
Shaft Sizes	Price, each	Weight, each	A	B	C	D	E	F	G	H	L	M	△Size of Pipe Tap
BABBITTED TYPE BEARINGS—"SERIES 1000"													
15/16	$0.95	1 3/4	1	3 1/4	4 1/2	2	1 3/8	3/8	.....	1/2	2	1 3/4	1/8
1 3/16	1.20	2 1/2	1 1/4	4	5 1/4	2 1/2	1 5/8	3/8	.....	5/8	2 3/8	2	1/8
1 7/16	1.50	4 1/4	1 3/8	5	6 3/4	3	2	1/2	.....	3/4	2 11/16	2 3/8	1/4
1 11/16	1.80	6	1 5/8	5 1/2	7 1/4	3 1/2	2 1/4	1/2	.....	3/4	3 3/16	2 3/4	1/4
1 15/16	2.10	8 1/2	1 3/4	6	8	4	2 3/4	5/8	.....	7/8	3 1/2	3 1/8	3/8
2 3/16	2.70	11	2	6 1/2	8 1/2	4 1/2	3	5/8	.....	1	3 7/8	3 3/8	3/8
2 7/16	3.20	14 3/4	2 1/4	7	9 1/4	5	3 1/4	3/4	.....	1 1/8	4 3/8	3 3/4	3/8
2 11/16	3.60	21	2 1/2	8 1/2	11 1/4	6	4	7/8	.....	1 1/4	5	4 1/2	3/8
2 15/16	4.80	24 3/4	2 1/2	8 1/2	11 1/4	6	4	7/8	.....	1 1/4	5	4 1/2	3/8
3 7/16	7.30	38 3/4	3	10	12 1/2	7	5	3/4	2 3/4	1 3/8	6	5 1/4	1/2
3 15/16	11.00	53	3 1/4	11	13 3/4	8	5 1/2	3/4	3	1 1/2	6 9/16	5 7/8	1/2

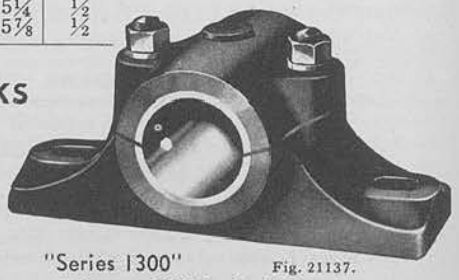
Solid Journal Bearings are used for moderate speeds and service where it is not necessary to install bearings of the split type. These bearings are furnished either with babbitt or without babbitt, as desired. Babbitted bearings are standard and will be supplied on all orders unless bored bearings are specified. Babbitted bearings are reamed to size and unbabbitted bearings are accurately bored to size.

Elongated bolt holes provide adjustment for shaft alignment. Bases are ground smooth and ends of bearings are finished.

Each bearing is drilled and tapped for grease cup or Alemite fitting.

Rigid Pillow Blocks





"Series 1300" Fig. 21137.

Rigid Pillow Blocks are standard "general purpose" grease lubricated bearings of the "Split" type. Ample bearing area and weight enable the bearings to withstand the continuous and shock loads of average duty in either transmission or conveyor service where shaft speeds are not excessive. Sizes 3 7/16" and larger have four cap bolts.

Elongated bolt holes in the base provide adjustment for shaft alignment. Bases are ground smooth and the bearing ends are machine finished. The cap bolts are relieved of side pressure by angular contact at the joint between cap and base. Shims are provided between base and cap which may be removed as required, to compensate for wear.

These bearings are babbitted and reamed to size with the caps in place, assuring concentricity and proper running fit upon the shafts. Grooves to distribute the lubricant are provided.

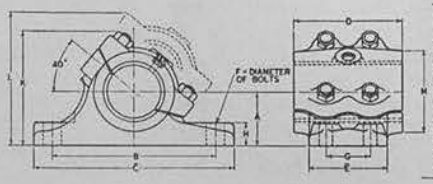
Each bearing cap is drilled and tapped for grease cup or Alemite fitting. Grease cup or fitting not included in price.

List Prices, Dimensions in Inches, and Average Weights in Pounds

Shaft Sizes	Price, each	Wt., each	A	B	C	D	E	F	G	H	K	L	M	△Size of Pipe Tap
15/16	$1.50	3	1 1/8	4 1/4	5 1/2	2	1 3/8	3/8	.....	9/16	2 1/4	3	1 3/4	1/8
1 3/16	2.00	5	1 3/8	5	6 1/4	2 1/2	1 5/8	3/8	.....	5/8	2 1/2	3 3/8	2	1/8
1 7/16	2.50	6 1/2	1 1/2	5 3/4	7 1/2	3	2	1/2	.....	3/4	3	3 7/8	2 3/8	1/4
1 11/16	3.20	9	1 3/4	6 1/2	8 1/4	3 1/2	2 1/4	1/2	.....	7/8	3 3/8	4 1/2	2 3/4	1/4
1 15/16	4.00	15	2	7	9	4	2 3/4	5/8	.....	1	3 3/4	5	3 1/8	3/8
2 3/16	5.00	19 1/2	2 1/4	7 1/2	9 1/2	4 1/2	3	5/8	.....	1 1/8	4 1/4	5 3/4	3 3/8	3/8
2 7/16	6.00	25	2 1/2	8	10 1/4	5	3 1/4	3/4	.....	1 1/8	4 5/8	6 1/4	3 3/4	3/8
2 11/16	7.50	36	2 3/4	9 1/2	12 1/4	6	4	7/8	.....	1 1/4	5 3/8	7 1/2	4 1/2	3/8
2 15/16	9.00	39	2 3/4	9 1/2	12 1/4	6	4	7/8	.....	1 1/4	5 3/8	7 1/2	4 1/2	3/8
3 7/16	13.50	50	3 1/4	10 1/2	13	7	5	3/4	2 3/4	1 3/8	6 1/4	8 1/8	5 1/4	1/2
3 15/16	18.00	76	3 1/2	12	14 3/4	8	5 1/2	3/4	3	1 1/2	6 7/8	9 3/8	5 7/8	1/2
4 7/16	25.00	97	4 1/8	13 1/2	16 1/2	9	6 1/4	7/8	3 1/2	1 3/4	7 7/8	10 1/2	6 5/8	1/2
4 15/16	34.00	123	4 1/2	15	18	10	7	7/8	4	1 7/8	8 9/16	11 7/8	7 1/4	1/2
5 7/16	44.00	228	5 1/2	16 1/2	20 1/2	12	8 1/2	1 1/8	5	2 1/8	10 1/4	13 3/4	8 1/2	1/2
5 15/16	55.00	214	5 1/2	16 1/2	20 1/2	12	8 1/2	1 1/8	5	2 1/8	10 1/4	13 3/4	8 1/2	1/2

Angle Pillow Blocks

"Series 1500"

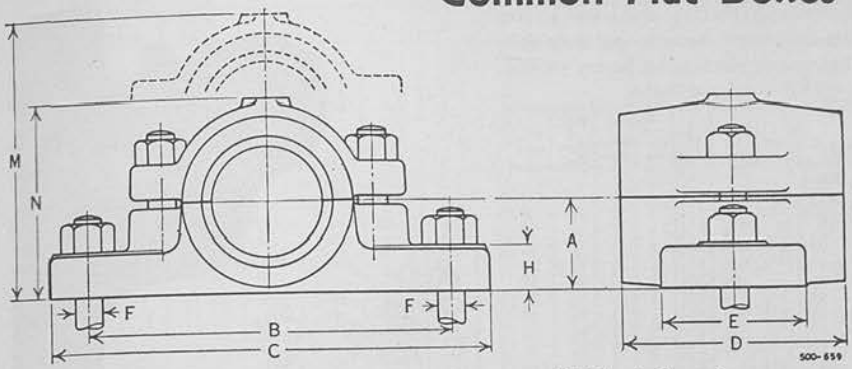


Angle Pillow Blocks may be mounted upon either horizontal or vertical surfaces. The angle design permits installing the bearing so that the pressure is exerted against the base, rather than against the "split" or cap. This general service heavy-duty bearing is particularly suitable for conveyors and elevators, and for shafts upon which gears or pulleys are mounted. Caps are tapped for grease cups or Alemite fittings, which are not included in price. Ends are finished and bases ground smooth.

LIST PRICES, DIMENSIONS IN INCHES.

Shaft Sizes	Price, Each	A	B	C	D	E	Bolt F	G	H	K	L	Size of Grease Cup and Pipe Tap
1 15/16	$7.00	2 1/4	7	9	4	2 3/4	7/8	.....	1	4 3/4	5 3/4	No. 2—1/8"
2 3/16	8.00	2 1/2	7 1/2	9 1/2	4 1/2	3	7/8	.....	1 1/8	5 1/2	6 1/2	" "
2 7/16	9.50	2 3/4	8	10 1/4	5	3 1/4	3/4	.....	1 1/4	6	7	" "
2 11/16	12.50	3 1/4	9 1/2	12 1/4	6	4	7/8	.....	1 3/8	7 1/4	8 3/4	No. 3—3/8"
3 7/16	17.00	3 1/2	10 1/2	13	7	5	3/4	2 3/4	1 1/2	7 1/2	9	No. 4—1/2"
3 15/16	24.00	3 3/4	12	14 3/4	8	5 1/2	3/4	3	1 5/8	8 1/2	10	" "
4 7/16	38.00	4 1/8	13 1/2	16 1/2	9	6 1/4	7/8	3 1/2	1 3/4	9	10 3/4	" "
4 15/16	52.00	4 1/2	15	18	10	7	7/8	4	1 7/8	10	12	" "
5 7/16	76.00	6 1/4	16 3/4	20	16 1/2	11	1	6 1/2	1 1/2	12 1/2	14 1/4	" "
5 15/16	118.00	7 1/8	17 3/4	21 1/2	18	12	1	7 1/2	1 5/8	13 1/2	15 1/4	" "
6 7/16	169.00	7 7/8	19	23	19 3/4	13	1 1/4	8	1 15/16	17	19	" "

Common Flat Boxes



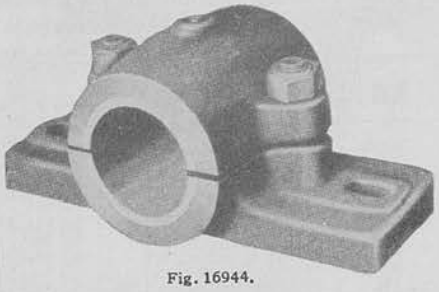


Fig. 16944.

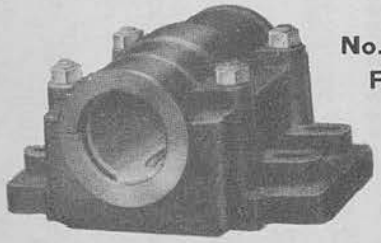
An inexpensive, compact, removable cap bearing for moderate speeds and light service. These boxes are babbitted and reamed to size with the cap in place, assuring concentricity and proper running fits upon the shafts.

Elongated bolt holes in the base provide adjustment for shaft alignment. Bases are ground smooth and the ends of bearings are finished. Shims between base and cap can be removed as required, to compensate for wear.

Caps are drilled and tapped for one grease cup or Alemite fitting.

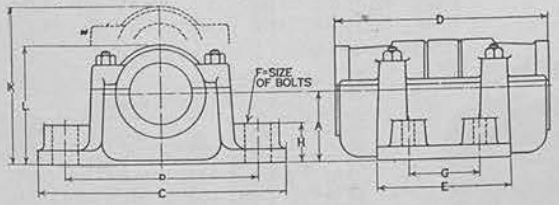
List Prices, Dimensions in Inches, and Average Weights in Pounds

Shaft Sizes	Price, each	A	B	C	D	E	F	H	M	N	Size of Pipe Tap	Weight, each
15/16	$1.00	1	4 1/2	5 7/8	2	1 5/8	3/8	1/2	2 7/8	2 1/8	1/4	2
1 3/16	1.35	1 1/8	5	6 3/8	2 1/2	1 7/8	3/8	5/8	3 1/8	2 1/4	1/4	3
1 7/16	1.65	1 3/8	5 1/2	7	3	2 1/4	1/2	3/4	4	2 3/4	1/4	5
1 11/16	2.00	1 1/2	6	7 1/2	3 1/2	2 1/2	1/2	3/4	4 1/4	3	1/4	7
1 15/16	2.30	1 5/8	6 5/8	8 1/4	4	2 3/4	1/2	3/4	4 3/4	3 3/8	3/8	9
2 3/16	2.80	1 7/8	7 1/4	9	4 1/2	3	5/8	7/8	5 1/4	3 15/16	3/8	12
2 7/16	3.40	2	8	9 3/4	5	3 1/4	5/8	1	5 3/4	4 1/4	3/8	17
2 15/16	5.00	2 3/8	8 1/2	10 1/4	6	3 3/4	5/8	1 1/8	6 3/4	4 7/8	3/8	24



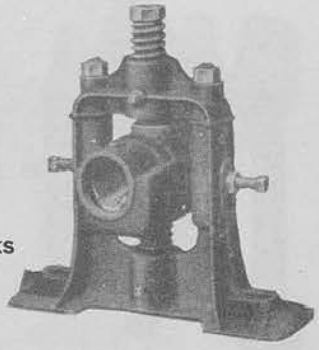
No. 17301 Heavy Duty Rigid Ring-Oiling Pillow Blocks

Bearing is babbitted and bored to size after babbitting. Base is ground and both ends of bearings are finished. Has ample size oil reservoir. Duplex type bearing.



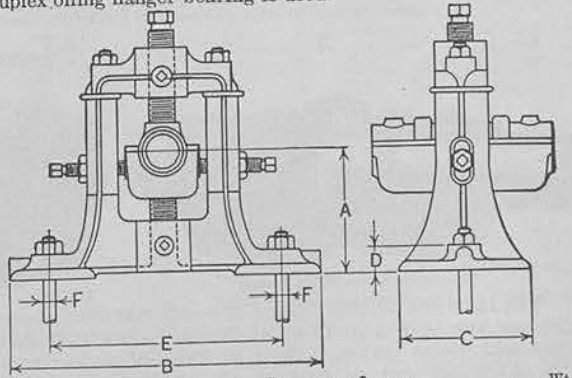
Shaft In.	Each	Dimensions, Inches A	B	C	D	E
2 7/16	$13.60	3 1/4	8 3/4	11 5/8	9 1/4	5 5/8
2 11/16	16.00	3 1/4	8 3/4	11 5/8	9 1/4	5 5/8
2 15/16	20.70	3 7/8	9 3/4	13	10 3/4	7
3 7/16	30.00	4 1/4	10 3/8	14	12 7/8	7 1/2
3 15/16	44.50	5	12	15 1/2	14 1/2	8 1/2
4 7/16	58.00	5 3/8	13 7/8	17 3/4	16	9 1/4
4 15/16	80.00	5 3/8	13 7/8	17 3/4	16	9 1/4
5 7/16	95.50	6 1/2	16 1/2	20 1/4	19	9 1/2
5 15/16	116.00	6 1/2	16 1/2	20 1/4	19	9 1/2

Shaft In.	Dimensions, Inches F	G	H	K	L	Wt. Lbs.
2 7/16	3/4	...	1 15/16	7 3/4	6	48
2 11/16	3/4	...	1 15/16	7 3/4	6	48
2 15/16	7/8	...	2 1/8	8 3/4	6 3/4	74
3 7/16	3/4	4	2 1/2	10 1/4	7 3/4	105
3 15/16	7/8	4 7/8	2 3/4	11	8 1/2	170
4 7/16	1	5 1/8	3 1/8	12	9	200
4 15/16	1	5 1/8	3 1/8	12 3/4	9 1/2	193
5 7/16	1 1/8	6	3 1/4	14 3/4	11 1/4	310
5 15/16	1 1/8	6	3 1/4	16	12	310



No. 17302 Adjustable Duplex-Oiling Ball and Socket Pillow Blocks

Has universal adjustment. Can be used as a short-drop head shaft hanger by inverting the bearing. Regular duplex oiling hanger bearing is used.



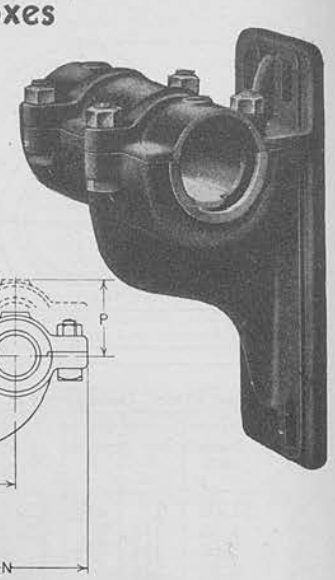
Shaft In.	Each	Dimensions, Inches A	B	C	D	E	F	Wt. Lbs.
1 3/16	$9.00	4	10 5/8	3	1	7 1/2	7/16	12
1 7/16	11.30	5 1/4	13	4	1 1/8	9 1/4	1/2	20
1 11/16	12.00	5 1/4	13	4	1 1/8	9 1/4	1/2	23
1 15/16	15.70	5 1/4	13 3/4	4 3/4	1 1/4	10	5/8	29
2 3/16	21.00	5 1/4	13 3/4	4 3/4	1 1/4	10	5/8	32
2 7/16	23.30	6 3/4	16 3/4	5 1/2	1 3/8	12	3/4	57
2 11/16	34.00	6 3/4	16 3/4	5 1/2	1 3/8	12	3/4	61
2 15/16	36.00	7	18 1/4	6 1/4	1 1/2	13 1/4	7/8	77
3 7/16	53.00	7 1/2	20	7	1 5/8	15 1/4	1	116
3 15/16	72.00	8 1/2	24	8	1 3/4	17 1/4	1 1/8	170
4 7/16	98.00	9	27 3/4	8 1/2	2 1/4	20 1/2	1 1/4	309
4 15/16	128.00	9	27 3/4	8 1/2	2 1/4	20 1/2	1 1/4	316

Rigid Plain and Ring-Oiling Post Boxes

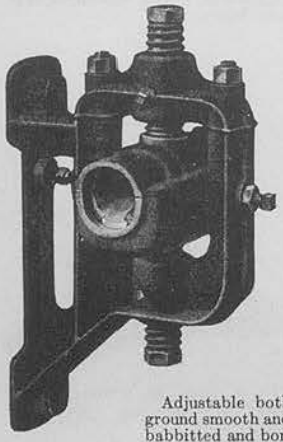
The Rigid Plain and Ring-Oiling Post Boxes are babbitted, and bored to size after babbitting. The backs of the post boxes are ground smooth, and both ends of the bearings are finished. The design is heavy and suitable for heavy service.

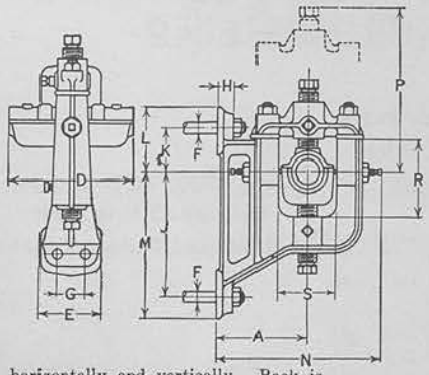
List Prices, Dimensions in Inches, and Average Weights in Pounds

Shaft Sizes	Price, each	A	D	E	F	G	H	J	K	L	M	N	P	Grease Cups No.	Grease Cups Size	Size of Pipe Tap	Wt., each
Rigid Plain Post Boxes																	
1 3/16	$ 2.75	2 3/4	3 3/4	3	3/8	....	1/2	4 1/4	1 3/4	2 3/4	5 1/4	4 7/8	1 3/4	1	1	1/4	8
1 7/16	3.25	3	4 1/2	3 1/2	1/2	....	5/8	4 7/8	1 7/8	3	6	5 1/4	2 1/8	1	1	1/4	10
1 15/16	3.75	3 1/2	5 1/4	4	5/8	....	5/8	5 3/8	2 3/8	3 5/8	6 5/8	5 7/8	2 1/4	1	1	1/4	15
1 15/16	4.50	3 3/4	6	4 1/4	5/8	....	5/8	5 3/4	2 3/4	4 1/4	7 1/4	6 3/8	2 1/2	1	2	3/8	20
2 3/16	5.25	3 1/2	6 3/4	4 3/8	5/8	....	3/4	5 3/4	2 1/2	4	7 1/4	6 3/8	3 1/8	1	2	3/8	23
2 7/16	6.75	4 1/4	7	4 3/4	5/8	....	3/4	6 3/4	2 3/4	4 1/4	8 1/4	7 5/8	3 1/4	1	2	3/8	30
2 15/16	7.75	4 1/2	8 1/4	5	5/8	....	3/4	7 1/4	3 1/4	4 5/8	8 3/4	7 7/8	3 5/8	1	3	3/8	33
2 15/16	9.25	4 1/2	9	5 1/4	3/4	3 1/4	7/8	7 3/4	3 1/4	4 3/4	9 1/4	8 1/4	4	1	3	3/8	35
3 7/16	13.25	6	14	7 1/2	3/4	4	7/8	12	2 3/4	4 1/8	13 3/8	10 3/4	2 1/2	2	3	3/8	75
3 15/16	18.00	6	16	8 1/2	7/8	5	1	13	3	4 3/4	14 3/4	11	2 1/2	2	3	3/8	110
Ring-Oiling Post Boxes																	
1 7/16	$ 4.20	4	6	2 1/2	5/8	....	5/8	7	1 1/2	2 1/2	8 1/8	6 1/4	1 5/8	....	....	....	12
1 11/16	5.00	4	7	2 3/4	5/8	....	5/8	7 1/2	1 1/2	2 5/8	8 5/8	7 1/4	1 5/8	....	....	....	19
1 15/16	6.50	4	8	4	5/8	....	5/8	8	1 1/2	2 5/8	9 1/8	7 1/2	1 3/4	....	....	....	25
2 3/16	8.00	4	9	4 1/2	3/4	....	3/4	9	2 1/4	3 1/2	10 1/4	7 1/2	1 3/4	....	....	....	31
2 7/16	9.50	4	9 3/4	5 1/4	3/4	....	3/4	10 3/4	1 3/4	3	12	8	2	....	....	....	45
2 11/16	12.50	6	11	5 3/4	3/4	3	7/8	11	1 1/2	2 7/8	12 3/8	9 3/4	2	....	....	....	55
2 15/16	13.75	6	11	6 3/4	3/4	4 1/2	7/8	11	2	3 1/2	12 3/8	9 3/4	2 1/2	....	....	....	64
3 7/16	23.25	6	14	7	3/4	4	1	12	2 3/4	4 1/8	13 3/8	10 3/4	2 1/2	....	....	....	98
3 15/16	28.00	6	16	8 1/2	7/8	5	1	13	3	4 3/4	14 3/4	11	2 1/2	....	....	....	120



No. 17308 Duplex-Oiling Ball and Socket Post Hangers





Adjustable both horizontally and vertically. Back is ground smooth and both ends of bearing finished. Bearing is babbitted and bored to size after babbitting. Bearings are correctly proportioned and suitable for severe service.

Shaft In.	*Each	Dimensions, Inches A	D	E	F	G	H	J
1 3/16	$9.80	5 3/4	5 1/4	3	7/16	...	1	6 1/4
1 7/16	11.50	7 3/8	6	4	1/2	...	1 1/4	7 3/8
1 11/16	12.50	7 3/8	7 3/8	4	1/2	...	1 1/4	7 3/8
1 15/16	15.50	7 3/8	8 1/4	4 1/2	3/4	...	1 1/4	7 3/8
2 3/16	17.50	7 3/8	9	4 1/2	3/4	...	1 1/4	7 3/8
2 7/16	21.50	7 3/8	10 1/2	5	3/4	...	1 1/2	10 3/4
2 11/16	24.50	7 3/8	11	5	3/4	...	1 1/2	10 3/4
2 15/16	31.00	7 3/8	12	5 1/2	7/8	...	1 1/2	11 1/2
3 7/16	48.00	10	14 1/2	6	7/8	2 1/2	1 3/4	11 3/4
3 15/16	66.00	10	16 1/2	6 1/4	1	2 3/4	1 3/4	12

Shaft In.	Dimensions, Inches K	L	M	N	P	R	S	*Wt Lbs.
1 3/16	3	4 1/2	7 3/4	10 1/4	7 1/2	5 1/8	3 3/8	15
1 7/16	3 3/8	5 1/8	9 1/8	12 1/4	8 3/4	5 1/2	3 7/8	28
1 11/16	3 3/8	5 1/8	9 1/8	12 1/4	8 3/4	5 1/2	3 7/8	31
1 15/16	3 1/2	5 1/2	9 5/8	13 1/2	9	5 5/8	4 1/2	38
2 3/16	3 1/2	5 1/2	9 5/8	13 1/2	9	5 5/8	4 1/2	43
2 7/16	3 3/4	5 5/8	12 5/8	13 1/2	11 1/4	6 3/8	5 1/4	64
2 11/16	3 3/4	5 5/8	12 5/8	13 1/2	11 1/4	6 3/8	5 1/4	67
2 15/16	4 1/2	6 3/4	14	14 1/4	12 1/4	7 1/4	5 3/4	85
3 7/16	4 3/4	8	14 3/4	18	15 1/2	8 1/8	7	128
3 15/16	5 1/8	7 1/2	14 3/4	18 3/4	17 1/2	8 3/4	7 3/4	164

*Include bearings.

Hanger Bearings

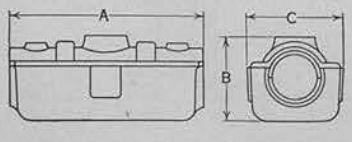
Fig. 17306—Duplex Oiling Bearing.

Fig. 17307—Universal Ring-Oiling Bearing

The Link-Belt Duplex Oiling Ball and Socket Bearing combines the construction and virtues of ring-oiling and capillary oiling bearings, using tempered steel rings and woven cotton wicking, so arranged as to insure thorough distribution of the lubricant as long as any remains in the reservoir.

The "Universal" Ring Oiling Bearings furnish the most reliable and effective single means of lubrication. Tempered steel rings hanging from the shaft into the lowest portion of oil reservoir, carry adhering oil up as the shaft revolves, where it is automatically distributed over the entire bearing surface.

Effective wipers are cast on each end of the bearing box, eliminating any necessity for springs and other fragile devices, and scraping all surplus oil from the shaft, back into the oil chamber. This prevents its following along the shaft and dropping on the floor.



In either bearing the reservoir will hold sufficient oil to last for six to twelve months.

Universal Ring-Oiling Bearing — Shaft Sizes	Price, each	A Length	B Depth	C Width	Weight, each
1 3/16	$ 2.10	5 1/8	3	2 7/8	4
1 7/16	2.90	6	3 3/4	3 3/8	6
1 11/16	3.50	7 1/4	4 1/8	3 3/8	9
1 15/16	4.80	8 1/4	4 1/2	4 1/8	11
2 3/16	5.70	9	4 7/8	4 1/2	14
2 7/16	7.20	10 1/2	5 1/4	4 7/8	20
2 11/16	8.30	11	5 3/4	5 1/4	24
2 15/16	11.30	12	6 1/4	5 1/2	28
3 7/16	21.80	14 1/2	6 3/4	6 1/4	38
3 15/16	28.50	16 1/2	8 1/4	7	60
4 7/16	30.00	17 3/4	8 3/4	7 3/4	93
4 15/16	33.00	19 1/2	9 1/2	8	118

Duplex Oiling Bearing — Shaft Sizes	Price, each	A Length	B Depth	C Width	Weight, each
1 3/16	$ 3.20	5 1/4	3 1/8	3	4
1 7/16	3.60	6	3 3/4	3 3/8	6
1 11/16	4.80	7 3/8	3 3/4	3 1/2	9
1 15/16	6.30	8 1/4	4 1/8	4 1/8	11
2 3/16	7.50	9	4 1/2	4 3/8	16
2 7/16	9.60	10 1/2	5	5	20
2 11/16	12.60	11	5 1/2	5	23
2 15/16	14.60	12	5 3/4	5 1/2	28
3 7/16	25.80	14 1/2	6 1/4	6 1/4	38
3 15/16	35.00	16 1/2	7 3/4	7	60
4 7/16	45.00	17 3/4	8	7 3/4	93
4 15/16	58.50	19 1/2	8 3/4	8	118

Ball and Socket Drop Hangers

List Prices (including bearings), Dimensions in Inches, and Average Weights in Pounds

Shaft Size	A Drop	Price, each	B	C	D	E	F	G	H	J	K	L	Weight, each
1 3/16	7-9	$ 8.20	9 1/4	12 3/4	5 1/4	3 1/2	7/16	.....	7/8	8	5 1/8	3 1/2	15
1 3/16	9-11	8.80	9 1/4	12 1/2	5 1/4	3 1/2	7/16	.....	7/8	8 1/2	5 1/4	3 1/2	17
1 3/16	11-13	9.40	10 1/4	13 3/4	5 1/4	3 1/2	7/16	.....	7/8	8 1/2	5 1/4	3 1/2	17
1 3/16	13-15	10.00	11 3/4	15 1/4	5 1/4	4	7/16	.....	7/8	8 1/2	5 1/4	3 1/2	19
1 3/16	15-17	10.90	12 1/2	16	5 1/4	4 1/4	7/16	.....	7/8	8 1/2	5 1/4	3 1/2	20
1 3/16	17-19	11.30	13 1/4	16 7/8	5 1/4	4 1/2	7/16	.....	7/8	8 1/2	5 1/4	3 1/2	23
1 7/16	7-9	10.00	9 5/8	13 1/4	6	4	5/8	.....	1 1/8	9 1/2	6 1/4	3 7/8	26
1 7/16	9-11	10.30	10 5/8	14 1/4	6	4	5/8	.....	1 1/8	9 1/2	6 1/4	3 7/8	26
1 7/16	11-13	11.00	11 5/8	14 7/8	6	4	5/8	.....	1 1/8	9 1/2	6 3/8	3 7/8	29
1 7/16	13-15	11.70	11 1/4	15	6	4 1/2	5/8	.....	1 1/8	10	6 3/8	4	31
1 7/16	15-17	12.50	12 1/2	16 1/8	6	4 3/4	5/8	.....	1 1/8	10	6 3/8	4	33
1 7/16	17-19	13.50	13	16 3/4	6	5	5/8	.....	1 1/8	10	6 1/4	4	36
1 7/16	19-21	14.00	13 7/8	17 3/8	6	5	5/8	.....	1 1/8	10	6 1/8	4	38
1 7/16	23-25	16.00	18	22	6	6	5/8	2 1/2	1 1/4	10	6 1/8	4	45
1 11/16	7-9	11.00	9 5/8	13 1/4	7 3/8	4	5/8	.....	1 1/8	9 1/2	6 1/4	3 7/8	29
1 11/16	9-11	11.50	10 5/8	14 1/4	7 3/8	4	5/8	.....	1 1/8	9 1/2	6 1/4	3 7/8	29
1 11/16	11-13	12.00	11 5/8	14 7/8	7 3/8	4	5/8	.....	1 1/8	9 1/2	6 3/8	3 7/8	32
1 11/16	13-15	13.00	11 1/4	15	7 3/8	4 1/2	5/8	.....	1 1/8	10	6 3/8	4	34
1 11/16	15-17	13.50	12 1/2	16 1/8	7 3/8	4 3/4	5/8	.....	1 1/8	10	6 3/8	4	36
1 11/16	17-19	14.50	13	16 3/4	7 3/8	5	5/8	.....	1 1/8	10	6 1/4	4	39
1 11/16	19-21	15.00	13 7/8	17 3/8	7 3/8	5	5/8	.....	1 1/8	10	6 1/8	4	41
1 11/16	23-25	17.00	18	22	7 3/8	6	5/8	2 1/2	1 1/4	10	6 1/8	4	48
1 15/16	7-9	13.50	11 3/8	15 3/8	8 1/4	4 3/8	5/8	.....	1 1/4	10 3/4	6 3/8	4 5/8	37
1 15/16	9-11	14.50	12 1/8	16	8 1/4	4 1/2	5/8	.....	1 1/4	10 3/4	6 3/8	4 3/4	40
1 15/16	11-13	15.50	12 1/4	16 1/8	8 1/4	4 1/2	5/8	.....	1 1/4	10 3/4	6 3/8	4 5/8	40
1 15/16	13-15	16.00	13 3/8	17 3/8	8 1/4	5	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	42
1 15/16	15-17	17.00	13 7/8	18	8 1/4	5 1/4	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	46
1 15/16	17-19	18.00	14 3/4	18 1/2	8 1/4	5 1/4	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	49
1 15/16	19-21	19.00	15	19 1/2	8 1/4	5 3/4	5/8	.....	1 1/4	10 3/4	6 1/2	4 1/2	52
1 15/16	23-25	20.00	21 1/8	25	8 1/4	6 1/8	5/8	3	1 3/8	11	6 1/2	4 1/2	60
1 15/16	29-31	$24.00	25	29 1/2	8 1/4	6 1/2	5/8	3	1 1/2	11	6 1/2	4 5/8	81
1 15/16	35-37	28.00	30 1/4	35 1/2	8 1/4	6 3/4	5/8	3 1/4	1 1/2	11	6 1/2	4 5/8	99
2 3/16	7-9	15.00	11 3/8	15 3/8	9	4 3/8	5/8	.....	1 1/4	10 3/4	6 3/8	4 5/8	42
2 3/16	9-11	15.50	12 1/8	16	9	4 1/2	5/8	.....	1 1/4	10 3/4	6 3/8	4 3/4	45
2 3/16	1-13	18.00	12 1/4	16 1/8	9	4 1/2	5/8	.....	1 1/4	10 3/4	6 3/8	4 5/8	45
2 3/16	3-15	19.00	13 3/8	17 3/8	9	5	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	47
2 3/16	5-17	19.50	13 7/8	18	9	5 1/4	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	51
2 3/16	7-19	21.00	14 3/4	18 1/2	9	5 1/4	5/8	.....	1 1/4	10 3/4	6 3/8	4 1/2	54
2 3/16	9-21	22.00	15	19 1/2	9	5 3/4	5/8	.....	1 1/4	10 3/4	6 1/2	4 1/2	57
2 3/16	3-25	26.00	21 1/8	25	9	6 1/8	5/8	3	1 3/8	11	6 1/2	4 1/2	67
2 3/16	9-31	30.00	25	29 1/2	9	6 1/2	5/8	3	1 1/2	11	6 1/2	4 5/8	86
2 3/16	5-37	36.00	30 1/4	35 1/2	9	6 3/4	5/8	3 1/4	1 1/2	11	6 1/2	4 5/8	105
2 7/16	7-9	19.50	12 1/4	16 3/8	10 1/2	5 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	56
2 7/16	9-11	20.50	12 3/4	17 1/4	10 1/2	5 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	56
2 7/16	11-13	21.50	13 1/2	18	10 1/2	5 3/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	60
2 7/16	13-15	23.00	14 3/4	19 1/8	10 1/2	6	3/4	.....	1 3/8	13	7 1/8	5 1/8	67
2 7/16	15-17	24.00	15 3/8	20	10 1/2	6 1/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	69
2 7/16	17-19	25.00	16	20 1/4	10 1/2	6 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	78
2 7/16	19-21	27.00	16 1/2	21 1/4	10 1/2	6 3/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	89
2 7/16	23-25	31.50	21 7/8	26 3/4	10 1/2	7 1/4	3/4	3	1 1/2	13	7 1/8	5 1/8	90
2 7/16	29-31	38.00	26 1/2	31 3/4	10 1/2	8	3/4	3	1 1/2	13 1/2	7 1/8	5 1/8	109
2 7/16	35-37	43.00	29 1/2	34 3/4	10 1/2	8 1/2	3/4	3	1 1/2	13 1/2	7 1/8	5 1/8	151
2 15/16	7-9	23.00	12 1/4	16 3/8	11	5 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	59
2 15/16	9-11	24.00	12 3/4	17 1/4	11	5 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	59
2 15/16	11-13	25.50	13 1/2	18	11	5 3/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	63
2 15/16	13-15	26.00	14 3/4	19 1/8	11	6	3/4	.....	1 3/8	13	7 1/8	5 1/8	70
2 15/16	15-17	27.50	15 3/8	20	11	6 1/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	72
2 15/16	17-19	30.00	16	20 1/4	11	6 1/2	3/4	.....	1 3/8	13	7 1/8	5 1/8	81
2 15/16	19-21	33.00	16 1/2	21 1/4	11	6 3/4	3/4	.....	1 3/8	13	7 1/8	5 1/8	92
2 15/16	23-25	37.00	21 7/8	26 3/4	11	7 1/4	3/4	3	1 1/2	13	7 1/8	5 1/8	93
2 15/16	29-31	42.00	26 1/2	31 3/4	11	8	3/4	3	1 1/2	13 1/2	7 1/8	5 1/8	112
2 15/16	35-37	45.00	29 1/2	34 3/4	11	8 1/2	3/4	3	1 1/2	13 1/2	7 1/8	5 1/8	154
2 7/8	7-9	27.00	13 1/4	18 1/4	12	6	7/8	.....	1 1/2	13 1/2	7 3/4	5 3/8	60
2 7/8	9-11	29.00	14 1/4	19	12	6 1/4	7/8	.....	1 1/2	13 1/2	7 3/4	5 3/8	86
2 7/8	11-13	31.00	14 5/8	19 1/2	12	6 1/4	7/8	.....	1 1/2	13 1/2	7 3/4	5 3/8	90
2 7/8	13-15	32.00	16	20 3/4	12	6 3/8	7/8	.....	1 1/2	13 1/2	7 3/4	5 3/8	97
2 7/8	15-17	33.00	15 1/4	20	12	6 1/2	7/8	.....	1 1/2	14	7 3/4	5 3/8	97
2 7/8	17-19	34.50	17 1/8	22	12	7	7/8	.....	1 1/2	14	7 3/4	5 3/8	102
2 7/8	19-21	36.00	18	23 1/4	12	7 1/2	7/8	.....	1 1/2	14	7 3/4	5 3/8	106
2 7/8	23-25	41.00	23 3/8	28 1/4	12	8	7/8	3 1/4	1 5/8	14	7 3/4	5 3/8	132
2 7/8	29-31	45.00	27	32	12	8 1/2	7/8	3 1/4	1 5/8	14 1/2	7 3/4	5 3/8	165
2 7/8	35-37	49.00	31	36	12	9	7/8	3 1/4	1 5/8	14 1/2	8	5 3/4	168
3 3/16	9-11	40.50	16 1/2	21 3/4	14 1/2	6 1/2	7/8	3 1/4	1 3/4	15	9	7	120
3 3/16	11-13	43.50	16 1/2	21 3/4	14 1/2	6 1/2	7/8	3 1/4	1 3/4	15	9	7	124
3 3/16	13-15	45.00	17	22 1/2	14 1/2	7	7/8	3 1/4	1 3/4	15	9	7	128
3 3/16	15-17	47.00	18	23 1/2	14 1/2	7	7/8	3 1/4	1 3/4	15	9	7	138
3 3/16	17-19	49.00	18	23 1/2	14 1/2	7 1/4	7/8	3 1/4	1 3/4	15 1/2	9	7	142
3 3/16	19-21	53.00	19	24 1/2	14 1/2	8	7/8	3 1/4	1 3/4	15 1/2	9	7	157
3 3/16	23-25	60.00	24	29 1/2	14 1/2	8 1/2	7/8	4	1 3/4	16	9	7	176
3 3/16	29-31	64.00	27	32 1/2	14 1/2	9	7/8	4	1 3/4	16	9	7	188
3 3/16	35-37	69.00	30 1/2	35 3/4	14 1/2	9 1/2	7/8	4	1 3/4	16	9	7	215
3 5/16	17-19	68.00	19 1/2	26	16 1/2	8 1/2	1	3 1/4	2	16 1/2	10 1/2	8	190
3 5/16	19-21	72.00	20	26 1/2	16 1/2	8 1/2	1	3 1/4	2	16 1/2	10 1/2	8	200
3 5/16	23-25	80.00	24	30	16 1/2	9	1	4 1/2	2	16 1/2	10 1/2	8	216
3 5/16	29-31	90.00	27	33	16 1/2	9 1/2	1	4 1/2	2	16 1/2	10 1/2	8	261
3 5/16	35-37	99.00	30 1/4	36 1/4	16 1/2	10	1	4 1/2	2	16 1/2	10 1/2	8	290
4 7/16	17-19	100.00	24	30 1/4	17 3/4	9	1 1/8	3 1/2	2 1/4	17	10	9	293
4 7/16	19-21	102.00	25 3/8	31 1/2	17 3/4	9	1 1/8	5	2 1/4	17	10	9	329
4 7/16	23-25	109.00	25	30 1/2	17 3/4	9	1 1/8	5	2	17	10	9	363
4 7/16	29-31	115.00	30	36	17 3/4	10 1/4	1 1/8	5	2	17	10	9	393
4 15/16	17-19	110.00	24	30 1/4	19 1/2	9	1 1/8	3 1/2	2 1/4	17	10	9	318
4 15/16	19-21	112.00	25 3/8	31 1/2	19 1/2	9	1 1/8	5	2 1/4	17	10	9	354
4 15/16	23-25	120.00	25	30 1/2	19 1/2	9	1 1/8	5	2	17	10	9	388
4 15/16	29-31	128.00	30	36	19 1/2	10 1/4	1 1/8	5	2	17	10	9	418

When frame only is required, deduct list price of Duplex Bearing.

Shifter arms and fittings for countershaft can be supplied for all the above listed hangers. Prices on application.

Duplex Oiling

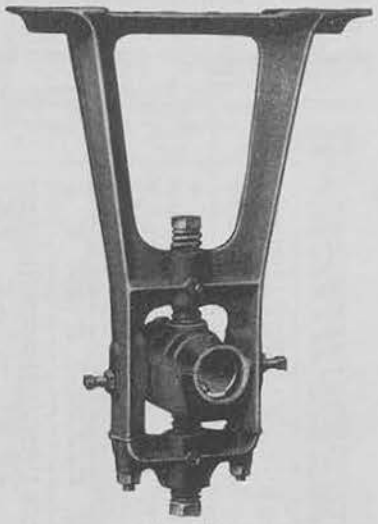


Fig. 17311.

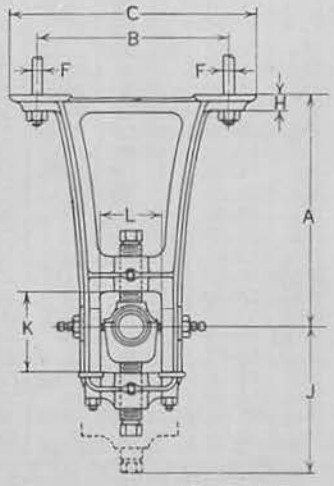


Fig. 500-925.

Ball and Socket Duplex Drop Hangers have both vertical and horizontal adjustment. The feet of the hangers are ground smooth. The bearing is babbitted, and bored to size after babbitting; both ends are finished. The design is substantial and the bearing is properly proportioned.

Universal Ring-Oiling Drop Hangers

These Drop Hangers are adjustable vertically and horizontally. The design is heavy, and the hangers are properly proportioned. The bearings are babbitted, and bored to size after babbitting. The feet of the hanger are ground smooth, and both ends of the bearing are finished.

*List Prices, Dimensions in Inches, and Average Weights in Pounds

Shaft Sizes	A Drop	Price, each	B	C	D	E	F	G	H	J	K	L	Weight, each
1 3/16	6- 8	$ 6.80	9 1/2	13 3/8	5 1/8	4	7/16	....	1 1/8	8 1/4	5 5/8	3 7/8	20
1 3/16	10-12	8.00	11	14 3/4	5 1/8	4	7/16	....	1 1/8	8 1/4	5 3/4	3 7/8	23
1 3/16	14-16	8.60	11 5/8	15 3/4	5 1/8	5	7/16	....	1 1/8	8 1/4	5 3/4	3 7/8	26
1 3/16	18-20	9.80	15	19	5 1/8	5 1/2	7/16	....	1 3/16	9	5 3/4	3 7/8	35
1 3/16	22-24	11.30	18 3/4	22	5 1/8	5 1/2	7/16	....	1 1/8	10	5 3/4	3 7/8	41
1 7/16	6- 8	7.50	9 1/2	13 3/8	6	4	7/16	....	1 1/8	8 1/4	5 3/8	3 7/8	22
1 7/16	10-12	9.00	11	14 3/4	6	4	7/16	....	1 1/8	8 1/4	5 3/4	3 7/8	25
1 7/16	14-16	10.50	11 5/8	15 3/4	6	5	7/16	....	1 1/8	8 1/4	5 3/4	3 7/8	28
1 7/16	18-20	11.00	15	19	6	5 1/2	7/16	....	1 3/16	9	5 3/4	3 7/8	37
1 7/16	22-24	14.00	18 3/4	22	6	5 1/2	7/16	....	1 1/8	10	5 3/4	3 7/8	43
1 11/16	6- 8	9.00	10 1/4	14	7 1/4	4 1/2	5/8	....	1	9 3/4	6 1/4	4 1/2	31
1 11/16	10-12	10.00	11 5/8	15 3/4	7 1/4	4 1/2	5/8	....	1 1/8	9 3/4	6 3/8	4 1/2	33
1 11/16	14-16	11.00	12 3/4	17	7 1/4	4 1/2	5/8	....	1 1/8	10	6 3/8	4 1/2	37
1 11/16	18-20	12.00	16 1/2	20 3/4	7 1/4	6	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	42
1 11/16	22-24	14.00	18 3/4	22 3/8	7 1/4	4 1/2	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	50
1 11/16	26-28	17.00	20	24	7 1/4	6 3/4	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	71
1 15/16	6- 8	10.50	10 1/4	14	8 1/4	4 1/2	5/8	....	1	9 3/4	6 1/4	4 1/2	33
1 15/16	10-12	12.50	11 5/8	15 3/4	8 1/4	4 1/2	5/8	....	1 1/8	9 3/4	6 3/8	4 1/2	35
1 15/16	14-16	14.00	12 3/4	17	8 1/4	4 1/2	5/8	....	1 1/8	10	6 3/8	4 1/2	39
1 15/16	18-20	15.00	16 1/2	20 3/4	8 1/4	6	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	44
1 15/16	22-24	17.00	18 3/4	22 3/8	8 1/4	4 1/2	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	52
1 15/16	26-28	19.00	20	24	8 1/4	6 3/4	5/8	....	1 1/8	10 1/2	6 3/8	4 1/2	73
2 3/16	10-12	$14.50	14 3/4	18 3/4	9	5 1/2	1/2	....	1 1/8	10 3/4	7 1/8	5 1/4	47
2 3/16	14-16	15.50	16 5/8	21 1/8	9	6	1/2	....	1 1/4	10 3/4	7 1/8	5 1/4	57
2 3/16	18-20	17.00	18 3/4	22 3/4	9	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	62
2 3/16	22-24	19.00	20 1/2	24 3/4	9	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	70
2 3/16	26-28	22.00	22	26 1/2	9	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	80
2 7/16	10-12	16.00	14 3/4	18 3/4	10 1/2	5 1/2	1/2	....	1 1/8	10 3/4	7 1/8	5 1/4	53
2 7/16	14-16	18.00	16 5/8	21 1/8	10 1/2	6	1/2	....	1 1/4	10 3/4	7 1/8	5 1/4	63
2 7/16	18-20	20.00	18 3/4	22 3/4	10 1/2	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	68
2 7/16	22-24	22.00	20 1/2	24 3/4	10 1/2	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	76
2 7/16	26-28	25.00	22	26 1/2	10 1/2	7	1/2	3 1/2	1 1/4	10 3/4	7 1/8	5 1/4	90
2 11/16	10-12	19.00	14	19 3/8	11	7 1/4	5/8	3 1/4	1 5/8	11 1/2	8	5 3/4	71
2 11/16	14-16	22.00	17 1/2	22 3/4	11	7 1/4	5/8	3 1/2	1 1/2	11 1/2	8	5 3/4	81
2 11/16	18-20	25.00	19	24	11	8	5/8	4	1 1/2	11 1/2	8	5 3/4	90
2 11/16	22-24	28.00	20 1/4	26 1/4	11	8	5/8	3 1/2	1 1/2	11 1/2	8	5 3/4	99
2 11/16	26-28	30.00	23	28 1/4	11	8 1/2	5/8	4	1 1/2	11 1/2	8	5 3/4	104
2 15/16	10-12	23.00	14	19 3/8	12	7 1/4	5/8	3 1/4	1 5/8	11 1/2	8	5 3/4	77
2 15/16	14-16	26.00	17 1/2	22 3/4	12	7 1/4	5/8	3 1/2	1 1/2	11 1/2	8	5 3/4	87
2 15/16	18-20	29.00	19	24	12	8	5/8	4	1 1/2	11 1/2	8	5 3/4	96
2 15/16	22-24	31.50	20 1/4	26 1/4	12	8	5/8	3 1/2	1 1/2	11 1/2	8	5 3/4	105
2 15/16	26-28	33.00	23	28 1/4	12	8 1/2	5/8	4	1 1/2	11 1/2	8	5 3/4	110

*List Prices include bearings. When frame only is required, deduct list price of ring-oiling bearing.
Shifter arms and fittings for countershaft can be supplied for all the above listed hangers. Prices on application.

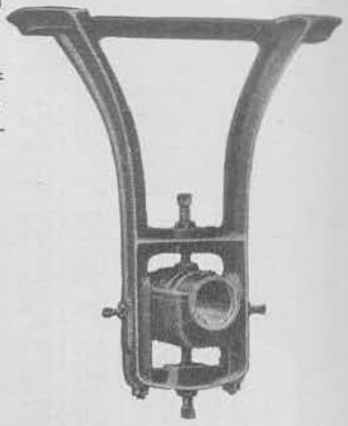


Fig. 17312.

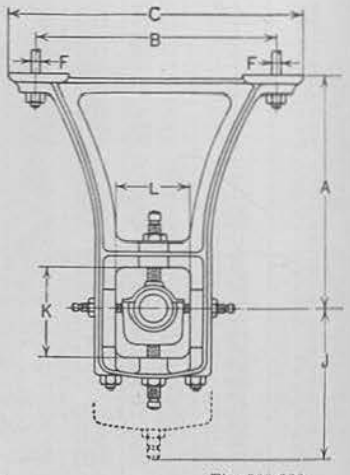


Fig. 500-920.

Ball and Socket Collar Oiling Drop Hangers

We have a complete line of patterns for this type of hanger. Prices on application.

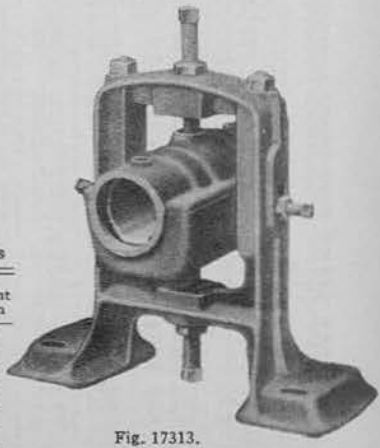


Fig. 17313.

Universal Adjustable Pillow Block

Ring-Oiling

These bearings are used as adjustable pillow blocks.

List Prices, Dimensions in Inches (for drawing see page 488), and Average Weights in Pounds

Shaft Sizes	Backing A	Price, each	B	C	D	E	F	G	H	J	K	L	Weight each
1 3/16	7 1/2-9	$ 7.00	9 1/2	13 1/4	5 1/8	4 1/4	5/8	.....	1 1/8	8 1/4	5 3/4	3 7/8	22
1 7/16	7 1/2-9	8.30	9 1/2	13 1/4	6	4 1/4	5/8	.....	1 1/8	8 1/4	5 3/4	3 7/8	24
1 11/16	7 1/2-9	9.00	10 1/4	14 1/4	7 1/4	4 3/4	5/8	.....	1 1/8	10	6 3/8	4 1/2	32
1 15/16	7 1/2-9	10.50	10 1/4	14 1/4	8 1/4	4 3/4	5/8	.....	1 1/8	10	6 3/8	4 1/2	34
2 3/16	7 1/2-9	13.50	11 3/4	15 3/4	9	6	5/8	3 1/4	1 1/4	10 3/4	7	5 3/8	43
2 7/16	7 1/2-9	15.00	11 3/4	15 3/4	10 1/2	6	5/8	3 1/4	1 1/4	10 3/4	7	5 3/8	49
2 11/16	7 1/2-9	17.50	12 1/2	17 1/2	11	6 1/2	5/8	3 1/4	1 5/8	11 1/2	8	5 3/4	65
2 15/16	7 1/2-9	24.00	12 1/2	17 1/2	12	6 1/2	5/8	3 1/4	1 5/8	11 1/2	8	5 3/4	70

Link-Belt Take-Ups

Style "N" Protected Screw Take-Ups

Babbitted Bearing Type—"Series 3000"

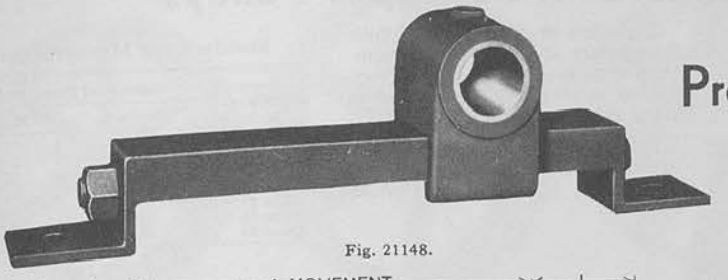
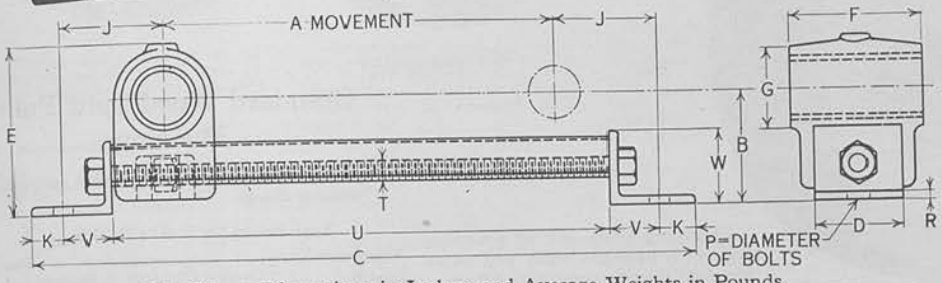


Fig. 21148.



List Prices, Dimensions in Inches, and Average Weights in Pounds

Shaft Sizes	Movement A	Price, each	Weight, each	B	C	D	E	F	G	J	K	P	R	T	U	V	W	△ Size of Pipe Tap
15/16	6	$ 6.00	5	2 1/2	12 1/4	1 3/4	3 5/8	2 1/2	1 7/8	2 7/16	11/16	1/2	3/16	1/2	8 1/4	1 5/16	1 1/2	1/8
1 3/16	6	6.80	5	2 1/2	12 1/4	1 3/4	3 5/8	2 1/2	1 7/8	2 7/16	11/16	1/2	3/16	1/2	8 1/4	1 5/16	1 1/2	1/8
1 7/16	9	8.60	9	3 1/8	16 1/2	2 1/4	4 7/16	3	2 5/16	2 3/4	1	1/2	1/4	5/8	11 1/2	1 1/2	2	1/4
1 7/16	12	10.00	10	3 1/8	19 1/2	2 1/4	4 7/16	3	2 5/16	2 3/4	1	1/2	1/4	5/8	14 1/2	1 1/2	2	1/4
1 11/16	12	10.80	22	4	21 1/2	3 1/4	5 3/4	4 3/4	3	3 1/2	1 1/4	5/8	5/16	3/4	15 1/2	1 3/4	2 1/2	3/8
1 15/16	12	11.60	21	4	21 1/2	3 1/4	5 3/4	4 3/4	3	3 1/2	1 1/4	5/8	5/16	3/4	15 1/2	1 3/4	2 1/2	3/8
1 15/16	18	14.40	24	4	27 1/2	3 1/4	5 3/4	4 3/4	3	3 1/2	1 1/4	5/8	5/16	3/4	21 1/2	1 3/4	2 1/2	3/8
2 3/16	9	11.20	31	4 3/8	20 1/4	3 1/4	6 1/2	5	3 5/8	4 3/8	1 1/4	3/4	5/16	7/8	13 1/4	2 1/4	2 1/2	3/8
2 3/16	12	12.40	32	4 3/8	23 1/4	3 1/4	6 1/2	5	3 5/8	4 3/8	1 1/4	3/4	5/16	7/8	16 1/4	2 1/4	2 1/2	3/8
2 3/16	18	15.00	35	4 3/8	29 1/4	3 1/4	6 1/2	5	3 5/8	4 3/8	1 1/4	3/4	5/16	7/8	22 1/4	2 1/4	2 1/2	3/8
2 7/16	12	13.20	31	4 3/8	23 1/4	3 1/4	6 1/2	5	3 5/8	4 3/8	1 1/4	3/4	5/16	7/8	16 1/4	2 1/4	2 1/2	3/8
2 7/16	18	16.60	34	4 3/8	29 1/4	3 1/4	6 1/2	5	3 5/8	4 3/8	1 1/4	3/4	5/16	7/8	22 1/4	2 1/4	2 1/2	3/8
2 15/16	12	19.00	42	5 1/8	24	4 1/4	7 5/8	6	4 1/4	4 3/4	1 1/4	3/4	3/8	1	17	2 1/4	3	3/8
2 15/16	18	20.60	48	5 1/8	30	4 1/4	7 5/8	6	4 1/4	4 3/4	1 1/4	3/4	3/8	1	23	2 1/4	3	3/8

Style "N" take-ups have many features which heretofore have been available only in heavier, higher priced lines.

The steel channel frame provides maximum strength with minimum weight and protects the take-up screw which is mounted so that it is always in tension. Take-up screw and nuts are cadmium plated.

Bearings are cast iron with babbitted bores reamed to size. Ends are faced and each bearing is tapped for one grease cup or Alemite fitting.

Style "D" Take-Ups

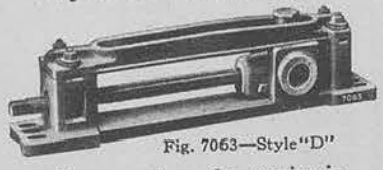


Fig. 7063—Style "D"

Styles A, and AA

Styles B and BB

For use where the service is too severe for Style BB.

Frame is heavy cast iron with sturdy screws and rugged bearings. End of the screw is squared for wrench. Base of frame and ends of bearings ground smooth.

Bearing is drilled and tapped for grease cup or Alemite fitting.

Styles A, AA, B and BB

Particularly suitable for use with wood supports and for light or medium service.

Slides of frame and ends of bearings are ground. Base is cast smooth. Bearings are drilled and tapped for grease cups or Alemite fittings.

Ends of screw milled flat for wrench. Hand wheels and levers are extra.

Style "DS" Take-Ups

T. M. Reg.

These are general utility Take-ups, suitable for a wide range of conditions, made for shafts 1 15/16" to 5 7/16" diameter, and with adjustments from 12" to 72" in the standard sizes.

Fig. 16316—Style "DS"

Style "AB" Take-Ups

As the use of steel or concrete supports increased, we developed, to better meet the new conditions, our Style "AB" Take-ups, with welded steel frames, to use instead of "A", "AA", "B" or "BB" Take-ups in many places.

No. 16983

Link-Belt Standard Wood Split Pulleys

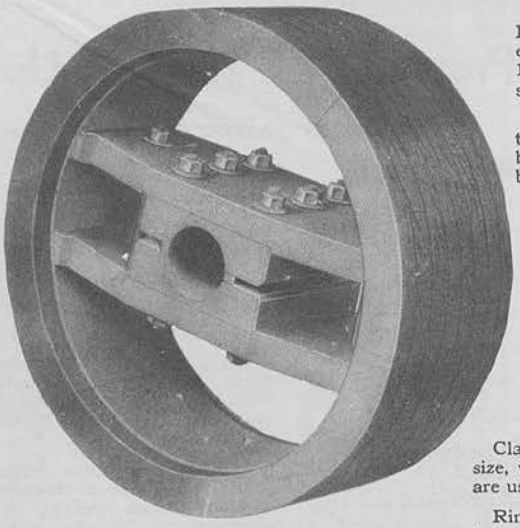


Fig 17315.

Sizes 3″ to 10″ diameter are made solid. 11″ to 36″ have two arms. 37″ diameter and larger are made with four arms.

Link-Belt Standard Wood Split Pulleys are stocked in inch diameters up to and including 12″. From 14″ up to 48″ they are carried in stock in "even" inches only.

Pulleys from stock can be fitted to standard shaft sizes up to limit of bore, using interchangeable wood bushings.

Clamping bolts are of generous size, with hexagon nuts, and more are used than is general practice.

Rims are manufactured from selected well seasoned Canadian soft maple—each segment thoroughly nailed and glued—arms manufactured from well seasoned hard maple of selected stock, and are tenoned, glued and dowelled into rims.

Standard and Maximum Bores

Diameter of Pulleys, in Inches	Diameter of Bores, in Inches	
	Standard	Maximum
3 and 4	1 11/16	1 15/16
5 and 6	2 7/16	2 7/8
7 and 8	3	3
9 to 15	3	3
16 to 22	3	3 7/16
23 to 36	3 1/2	3 15/16
Over 36	3 1/2	3 15/16

Standard Wood Split Pulley Bushings

One set of bushings furnished with each pulley without charge.

List Prices for Extra Bushings

Length, Inches	Outside Diameter of Bushing				
	1 11/16″	2 7/16″	3″	3 1/2″	4 1/2″
6	$0.20	$0.30	$0.40	$0.50	$0.70
8	.30	.40	.55	.65	.95
10	.40	.50	.70	.85	1.20
12	.50	.60	.80	1.00	1.40
14	$0.60	$0.70	$0.95	$1.15	$1.65
16	.70	.80	1.10	1.30	1.90
18	.80	.90	1.20	1.50	2.10
20	.90	1.00	1.40	1.70	2.40

List Prices

Diam., Inches	Width of Face, Inches											
	3	4	5	6	8	10	12	14	16	18	20	22
3	$3.50	$3.50	$ 4.00	$ 4.00	$ 4.50	$ 5.00	$ 5.50					
4	3.50	3.50	4.00	4.00	4.50	5.00	5.50					
5	3.50	3.50	4.00	4.00	4.50	5.00	5.50					
6	3.50	3.50	4.00	4.50	5.00	5.50	6.00					
7	3.50	4.00	4.00	4.50	5.00	5.50	6.50	$ 7.00				
8	3.50	4.00	4.00	4.50	5.00	6.00	6.50	7.50				
9	4.00	4.00	4.50	4.50	5.50	6.50	7.00	8.00				
10	4.00	4.00	4.50	5.00	6.00	6.50	7.50	8.50	$ 9.00			
11	4.50	4.50	5.00	5.50	6.50	7.50	8.50	9.50	10.50			
12	4.50	5.00	5.50	6.00	7.00	8.00	9.00	10.00	11.50	$ 12.50		
13		5.00	6.00	6.50	7.50	9.00	10.00	11.00	12.50	13.50		
14		5.50	6.00	7.00	8.00	9.50	11.00	12.50	13.50	15.00	$ 16.00	
15		6.00	6.50	7.50	9.00	10.50	11.50	13.00	14.50	16.00	17.50	
16		6.50	7.00	8.00	9.50	11.00	12.50	14.00	15.50	17.00	18.50	$ 20.00
17		6.50	7.50	8.50	10.00	11.50	13.50	15.00	16.50	18.50	20.00	22.00
18		7.00	8.00	9.00	10.50	12.50	14.00	16.00	18.00	19.50	21.50	23.00
19		7.50	8.50	9.50	11.00	13.00	15.00	17.00	19.00	21.00	22.50	24.50
20		8.00	9.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00
22		8.50	9.50	10.50	13.00	15.50	17.50	20.00	22.00	24.50	26.50	29.00
24		9.50	10.50	12.00	14.50	17.00	20.00	22.50	25.00	27.50	30.50	33.00
26		10.00	11.50	13.00	16.00	19.00	22.00	25.00	28.00	31.00	34.00	37.00
28		11.00	12.50	14.50	17.50	21.00	24.50	28.00	31.00	34.50	38.00	41.00
30		12.00	13.50	15.50	19.50	23.00	26.50	30.50	34.00	38.00	41.50	45.50
32		12.50	14.50	16.50	21.00	25.00	29.00	33.00	37.00	41.00	45.00	49.50
34		13.50	16.00	18.00	22.50	27.00	31.50	36.00	40.00	44.50	49.00	53.50
36		14.50	17.00	19.50	24.00	29.00	34.00	38.50	43.50	48.00	53.00	57.50
38				21.00	26.00	31.00	36.00	41.50	46.50	51.50	56.50	62.00
40				22.00	27.50	33.00	38.50	44.00	49.50	55.00	60.50	66.00
42				23.50	29.50	36.00	41.50	47.50	53.50	59.50	65.50	71.50
44				25.00	31.50	38.00	44.50	51.00	57.50	64.00	70.50	77.00
46				27.00	34.00	40.50	47.50	54.50	61.50	68.50	75.50	82.50
48				28.50	36.00	43.50	51.00	58.50	66.00	73.00	80.50	88.00
50				30.50	38.50	46.50	54.00	62.00	70.00	78.00	86.00	94.00
52				32.50	41.00	49.50	57.50	66.00	74.50	83.00	91.50	100.00
54				34.50	43.50	52.50	61.00	70.00	79.00	88.00	97.00	105.50
56				37.00	46.50	55.50	65.00	74.50	83.50	93.00	102.50	112.00
58				39.50	49.00	59.00	69.00	79.00	88.50	98.50	108.00	118.00
60				42.00	52.00	62.50	73.00	83.00	93.50	104.00	114.00	124.50
62				44.50	55.50	66.00	77.00	87.50	98.50	109.50	120.00	131.00
64				47.50	58.50	70.00	81.00	92.50	103.50	115.00	126.00	137.50
66				50.00	62.00	74.00	86.00	98.00	109.50	121.50	133.50	145.50
68				53.50	66.00	78.50	91.00	103.50	116.00	128.00	140.50	153.00
70				$56.50	$69.50	$83.00	$96.00	$109.00	$122.00	$135.00	$148.00	$161.50
72				60.00	73.50	87.50	101.00	114.50	128.50	142.00	156.00	169.50
78					86.50	102.00	117.00	132.50	148.00	163.50	179.00	194.50
84					100.00	117.50	134.50	152.00	169.00	186.50	203.50	221.00
90					114.50	134.00	153.00	172.00	191.00	210.00	229.00	248.00
96					131.00	152.00	173.00	194.00	215.00	236.00	257.00	278.00
102					148.50	171.50	195.00	218.00	241.00	264.00	287.50	310.50
108					167.00	192.50	218.00	243.00	268.50	294.00	319.00	344.50
114					187.00	214.50	242.00	269.50	297.00	324.50	352.00	379.50
120					208.00	237.50	267.00	297.00	326.50	356.00	385.50	415.50

Discounts are lower (Net prices higher) to right of heavy line.

Solid Cast Iron Sleeves for Making Pulleys Tight and Loose

These sleeves are used with Cast Iron Split Pulleys and Wood Split Pulleys

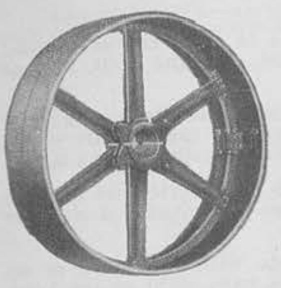
Standard Sleeves are made as follows:

Bore	Outside Diameter
1 15/16 to 1 15/16	2 7/16
1 15/16 to 2 7/16	2 15/16
1 7/16 to 2 1/16	3 7/16
2 1/16 to 2 15/16	3 15/16

List Prices of Solid Cast Iron Sleeves

Outside Diam., Inches	Length of Sleeve, Inches	For Pulley Face, Inches	PRICE		
			Not Fitted	Fitted to Wood Pulley	Fitted to Std. Iron or Steel Pulley
2 7/16	3 1/2	3	$2.20	$3.20	....
2 7/16	4 1/2	4	2.50	3.50	$4.50
2 7/16	5 1/2	5	2.85	3.85	4.85
2 7/16	6 1/2	6	3.35	4.35	5.35
2 7/16	8 1/2	8	4.15	5.15	6.15
2 7/16	10 1/2	10	4.95	5.95	6.95
2 7/16	12 1/2	12	5.75	6.75	7.75
2 15/16	3 1/2	3	2.40	3.40	....
2 15/16	4 1/2	4	2.90	3.90	4.90
2 15/16	5 1/2	5	3.50	4.50	5.50
2 15/16	6 1/2	6	4.15	5.15	6.15
2 15/16	8 1/2	8	$ 5.35	$ 6.35	$ 7.35
2 15/16	10 1/2	10	6.50	7.50	8.50
2 15/16	12 1/2	12	7.65	8.65	9.65
3 7/16	4 1/2	4	3.30	4.30	....
3 7/16	5 1/2	5	3.95	4.95	5.95
3 7/16	6 1/2	6	4.65	5.65	6.65
3 7/16	8 1/2	8	6.00	7.00	8.00
3 7/16	10 1/2	10	7.65	8.65	9.65
3 7/16	12 1/2	12	9.00	10.00	11.00
3 7/16	14 1/2	14	10.40	11.40	12.40

Steel Split Pulleys



Design used: sizes 7" to 16" diameter, all faces; also sizes 16" to 24" diameter, narrow faces only.

Design used: 16" to 24" diameter, wide faces only; also used for 25" to 42" diameter, wide faces having two or more rows of arms. Pulleys over 42" diameter have eight arms.

Where the duty is extreme and too severe for standard pulleys, special heavy duty pulleys may be supplied. These pulleys are made with extra heavy arms or disc centers, depending on size and conditions.

Diameter, Inches	Belt Width, Inches 2	3	4	5	6	8	10	12	14	16
3	$4.56	$ 4.80	$ 5.04	$ 5.36	$ 6.00	......	......	......	......	......
3½	4.68	4.92	5.16	5.44	6.10	......	......	......	......	......
4	4.80	5.04	5.28	5.50	6.20	......	......	......	......	......
5	5.04	5.28	5.50	5.74	6.50	$ 9.00	$10.20	......	......	......
6	6.30	6.60	6.90	7.50	8.10	9.20	10.40	$11.80	......	......
7	6.44	6.76	7.20	7.80	8.40	9.60	10.80	12.20	......	......
8	6.60	6.90	7.50	8.10	8.70	9.90	11.20	12.50	......	......
9	6.76	7.20	7.80	8.40	9.00	10.20	11.50	12.70	......	......
10	6.90	7.50	8.10	8.70	9.30	10.50	11.80	12.90	......	......
11	7.30	7.80	8.40	9.00	9.60	10.80	12.00	13.80	......	......
12	7.80	8.40	9.26	9.60	10.66	11.56	12.90	15.30	$18.00	$20.50
13	8.10	8.70	9.60	10.40	11.24	12.86	14.40	16.80	19.00	21.50
14	8.40	9.00	10.40	11.30	12.30	14.10	16.06	18.00	20.00	22.50
15	8.70	9.30	10.90	11.60	13.10	15.30	17.60	19.50	21.50	24.00
16	9.00	9.90	11.50	12.20	13.80	16.50	18.90	21.00	23.00	25.30
17	......	10.50	12.00	13.00	14.56	17.56	20.10	22.50	24.80	27.30
18	......	11.10	12.76	14.00	15.30	18.60	21.30	24.00	26.50	29.00
19	......	11.60	13.50	15.00	16.50	20.26	22.50	25.80	28.40	31.20
20	......	12.00	15.00	16.20	18.00	21.46	24.00	28.50	30.60	33.80
21	......	12.50	16.00	17.80	19.20	22.50	25.96	31.20	36.00	41.10
22	......	13.00	17.10	19.00	20.56	24.00	28.20	33.60	39.00	42.60
23	......	14.00	17.40	19.80	21.16	25.20	29.50	36.00	42.00	48.60
24	......	15.00	17.80	20.00	21.90	26.40	31.36	38.10	45.30	52.50
25	......	......	18.40	20.50	22.90	27.60	32.80	40.40	49.00	58.50
26	......	......	19.10	21.00	23.90	28.80	34.20	42.60	52.50	62.40
28	......	......	21.60	23.40	25.80	30.90	36.30	45.80	57.00	69.00
30	......	......	24.00	25.80	28.20	34.50	39.80	49.50	63.00	76.20
32	......	......	26.40	28.20	30.90	38.70	45.00	53.72	68.30	83.30
34	......	......	28.80	31.50	34.50	43.50	51.00	60.00	73.50	90.00
36	......	......	31.80	35.70	39.00	48.00	57.30	67.50	79.50	97.20
38	......	......	39.00	41.30	43.50	52.80	62.10	74.30	85.50	103.50
40	......	......	42.00	45.50	48.00	57.00	67.50	80.30	93.00	110.30
42	......	......	46.50	49.70	52.50	64.50	75.00	87.00	100.50	115.50
44	......	......	......	......	58.50	71.24	82.50	94.50	108.00	122.24
46	......	......	......	......	66.00	78.00	90.00	100.50	115.50	129.00
48	......	......	......	......	73.50	84.00	97.50	108.00	123.00	135.00

For Key Seating of Steel Split Pulleys: Prices on application.

Bores and Hub Lengths

Pulley Diam.	Belt Width	Hub Length	△ Max. Bore at Reg. Price	Pulley Diam.	Belt Width	Hub Length	△ Max. Bore at Reg. Price	Pulley Diam.	Belt Width	Hub Length	△ Max. Bore at Reg. Price
				8 to 9	2	3½	2 7/16	30	4 to 8	5½	3 7/16
3 to 3½	2 to 4	2¼	1½	8 to 9	3 to 10	4½	2 15/16	30	10 to 16	6½	4 7/16
3 to 3½	5	† 5¼	1½	8 to 9	12 to 16	†10⅝	2 15/16	30	18 to 26	†17	4 7/16
3 to 3½	6	† 5¾	1½	10 to 16	2	3½	2 7/16	30	28	†19	4 7/16
4	2 to 5	2½	2	10 to 16	3 to 6	4½	3 7/16	30	30	‡27¼	4 7/16
4	6	3½	2	10 to 16	8 to 12	5½	3 7/16	32 to 36	4 to 6	5½	3 7/16
5	2 to 4	2½	2	10 to 16	14 to 18	†11¾	3 7/16	32 to 36	8 to 16	6½	4 7/16
5	5 to 6	3½	2	17 to 23	3 to 6	4½	3 7/16	32 to 36	18 to 26	†17	4 7/16
5	8	†7	2	17 to 23	8 to 12	5½	3 7/16	32 to 36	28	†19	4 7/16
5	10	†8	2	17 to 23	14 to 18	†11¾	3 7/16	32 to 34	30 to 32	‡27¼	4 7/16
6	2 to 6	3½	2 7/16	24	3 to 5	4½	3 7/16	38 to 42	4 to 16	6½	4 7/16
6	8	† 7⅜	2 7/16	24	6 to 12	5½	3 7/16	38 to 42	18 to 26	†17	4 7/16
6	10	† 9	2 7/16	24	14 to 18	†11¾	3 7/16	38 to 42	28	†19	4 7/16
6	12	†10 1/16	2 7/16	24	20	†13¾	3 7/16	36 to 42	30 to 36	‡27¼	4 7/16
7	2 to 6	3½	2 7/16	25 to 28	4 to 8	5½	3 7/16	44 to 48	6	6½	4 7/16
7	8 to 10	†7⅝	2 7/16	25 to 28	10 to 16	6½	4 7/16	44 to 48	8 to 16	8½	4 7/16
7	12	†10⅜	2 7/16	25 to 28	18 to 20	†17	4 7/16	44 to 48	18 to 26	†19	4 7/16

Steel Split Pulleys are strong and efficient. Proper balance permits of operation at peripheral speeds up to 6000 feet per minute in general service, using leather belts of standard double belt specifications or rubber transmission belts. Grooved face pulleys with angular crowns operate with minimum slippage.

From the standpoint of installation and maintenance, Steel Split Pulleys have many advantages. Except for the most severe service, it is unnecessary to key these pulleys upon the shafts. Steel Clamp Hubs without keys or set screws, hold these pulleys firmly against belt tensions double that considered as the maximum permissible under normal operating conditions. All sizes are "split", permitting of installation or removal without disturbing the shaft. Removable and interchangeable split bushings adapt standard pulleys for all normal shaft diameters so that where pulley sizes can be standardized, a satisfactory maintenance reserve is provided by a minimum number of pulleys with a range of bushings to cover the various shaft sizes involved

From the standpoint of operation, Steel Split Pulleys have the advantage of light weight and freedom from "wind drag." The narrow pulley arms cut the air rather than displace it, an important consideration particularly on high speed service and where a large number of pulleys are used. All parts are made in dies and symmetrically arranged, providing interchangeability and basic balance. Sizes 24" diameter and larger are regularly balanced as a distinct operation of manufacture and smaller sizes are balanced when conditions of service so require. Proper balance is essential for high speed operation.

Steel Split Pulleys are available in sizes and types for all usual applications.

Directions for Ordering

Specify diameter, Belt Width, bore or shaft size and whether Crown Face or Straight Face Pulleys are wanted. Crown Face Pulleys are considered standard and will be supplied unless Straight Face Pulleys are specified. If tight and loose pulleys are wanted or if special construction is desired, orders must so indicate.

Crown Face Pulleys should be used for non-shifting and tight-and-loose pulley applications. Use Straight Face Pulleys for shifting belts.

When ordering bushings, specify outside diameter, inside diameter and length. Pulleys can be provided with tight bushings to fit any shaft size smaller than the inside hub diameter of the pulley.

There is no extra charge for one tight bushing in each pulley hub, when the shaft diameter so requires. Bushings for loose pulleys and additional tight bushings are priced as extras.

Bushings for Steel Split Pulleys

One complete set of bushings furnished with each pulley without charge

Outside Diameter, Inches	Length, Inches	Price, Each
1 7/16	2¼	$0.30
1 15/16	2½	.30
1 15/16	3½	.30
2 7/16	3½	.75
2 15/16	4½	.75
3 7/16	4½	.75
3 15/16	5½	.75
4 7/16	6½	1.35
4 15/16	8½	1.35
6	10½	4.00
8½	10½	6.00

Large Bores

Pulleys 12" to 60" diameter can be supplied with bores larger than indicated above.

Cast Iron Power Transmission Pulleys

Small Bores

When pulleys are required with bores so small as to necessitate special machine fixtures, or involve extra labor, an additional charge will be made.

Odd Bores

For pulleys with bores involving fractions less than $\frac{1}{8}$ inch, or metric sizes, or bored to gauges furnished, an extra charge will be made.

Solid Machine Molded Pulley

Ordering

In ordering cast iron pulleys, give the following information:

Double belt, triple belt, etc.
Solid or split construction.
Crown or straight face.
Set screws only, or key-seated and set screws.
Special conditions of service.
Special hub details if any, and location of hub.

Split Machine Molded Pulley

General

Iron pulleys are made in diameters and face widths to meet any commercial requirements. They may have solid rim and hub, solid rim and split hub, or split rim and hub.

The split construction facilitates handling, and permits the placing on shaft or removal without disturbing shaft or bearings. Split pulleys used at rim speeds over 4500 feet per minute are usually made with split arm at joints in the rim.

Both solid and split iron pulleys for ordinary double belt service are machine molded up to 60″ diameter and 22″ face. Larger sizes or unusual design are machine swept and cored, or made from patterns.

Pulleys 72″ diameter and under are regularly made with four, five or six arms, depending on pattern equipment. Larger diameters have eight or ten arms. Web centre can be made at an extra price.

SOLID IRON PULLEYS—Single Arm

Diameter	Max. Bore Regular Price	FACE WIDTH, INCHES								
		2	3	4	5	6	7	8	9–10	11–12
3 To 5	1 7/16	$6.00	$6.70	$7.40	$8.10	$8.90	$9.80	$10.80	$13.00	.....
6	2 7/16	6.70	6.70	7.40	8.10	8.90	9.80	10.80	13.00	.....
7	"	7.00	7.00	7.70	8.60	9.50	10.50	11.70	14.10	.....
8	"	7.40	7.40	8.20	9.10	10.10	11.20	12.70	15.20	$18.20
9	"	7.70	7.70	8.80	9.70	10.80	12.10	13.70	16.50	19.60
10	2 15/16	8.10	8.10	9.20	10.30	11.60	13.00	14.70	17.70	21.10
11	"	8.60	8.60	9.70	11.00	12.20	14.00	15.90	19.10	22.60
12	"	9.20	9.20	10.40	11.80	13.20	15.00	17.00	20.40	24.20
13	"	9.70	9.70	11.00	12.60	14.20	16.00	18.20	21.80	25.70
14	"	10.30	10.30	11.70	13.40	15.10	17.20	19.40	23.30	27.40
15	"	10.90	10.90	12.50	14.20	16.20	18.30	20.70	24.70	29.00
16	"	11.60	11.60	13.30	15.20	17.20	19.50	22.00	26.20	30.70
17	3 15/16	12.40	12.40	14.20	16.20	18.30	20.70	23.30	27.80	32.40
18	"	13.20	13.20	15.10	17.20	19.50	22.00	24.70	29.40	34.20
19	"	14.00	14.00	16.00	18.20	20.60	23.20	26.00	31.00	36.00
20	"	14.80	14.80	17.00	19.30	21.80	24.50	27.40	32.60	37.80
21-22	"	16.60	16.60	19.00	21.50	24.20	27.30	30.30	36.00	41.60
23-24	"	18.50	18.50	21.10	23.70	26.80	30.00	33.30	39.40	45.80
25-26	4 7/16	20.50	20.50	23.30	26.20	29.40	32.90	36.40	43.00	50.00
27-28	"	22.70	22.70	25.60	28.80	32.20	35.90	39.70	46.90	54.40
29-30	"	25.20	25.20	28.30	31.70	35.20	39.10	43.30	51.00	59.00
31-32	"	27.60	27.60	31.00	34.60	38.40	42.60	46.90	55.20	64.10
33-34	"	30.30	30.30	33.90	37.70	41.90	46.20	50.90	59.80	69.50
35-36	"	33.30	33.30	36.90	41.20	45.50	50.10	55.00	64.60	75.10
37-38	"	36.10	36.10	40.20	44.70	49.30	54.30	59.60	69.90	80.80
39-40	"	39.20	39.20	43.50	48.20	53.20	58.60	64.40	75.40	86.90
41-42	"	42.50	42.50	47.00	52.30	57.50	63.30	69.40	81.20	93.60
43-44	"	45.60	45.60	50.80	56.30	61.80	68.00	74.60	87.30	100.60
45-46	"	49.10	49.10	55.70	60.70	66.40	73.00	80.00	93.80	108.00
47-48	"	52.40	52.40	58.50	64.80	71.20	78.40	85.50	100.40	115.50

SPLIT IRON PULLEYS—Single Arm

Diameter	Max. Bore Regular Price	FACE WIDTH, INCHES							
		3	4	5	6	7	8	9–10	11–12
3 To 5	1 7/16	$10.70	$11.30	$12.40	$13.20	$14.60	$15.60	$18.40	.....
6	2 7/16	10.70	11.30	12.40	13.20	14.60	15.60	18.40	.....
7	"	10.90	11.50	12.90	13.70	15.30	16.50	19.70	.....
8	"	11.50	12.10	13.60	14.60	16.40	18.00	21.20	$25.10
9	"	11.90	12.70	14.20	15.20	17.20	18.90	22.60	26.70
10	2 15/16	12.10	13.20	15.00	16.40	18.60	20.40	24.30	28.60
11	"	12.60	13.60	15.70	17.20	19.60	21.60	25.80	30.30
12	"	13.40	14.70	16.80	18.20	21.00	23.20	27.80	32.50
13	"	14.00	15.10	17.60	19.20	22.00	24.40	29.00	33.90
14	"	14.60	16.10	18.80	20.50	23.70	26.00	31.00	36.40
15	"	15.40	16.90	19.60	21.60	24.90	27.40	32.50	38.00
16	"	16.40	18.10	21.20	23.20	26.50	29.40	34.80	40.60
17	3 15/16	17.20	19.00	22.10	24.20	28.00	30.60	36.60	42.30
18	"	18.40	20.20	23.60	26.00	29.70	32.60	38.70	45.00
19	"	18.90	21.10	24.60	27.00	30.80	33.60	40.00	46.30
20	"	20.40	22.60	26.20	28.60	33.00	35.60	42.50	49.00
21-22	"	22.70	25.10	28.90	31.80	36.30	39.90	46.50	53.50
23-24	"	25.00	27.40	31.60	34.80	39.60	43.00	50.50	58.50
25-26	4 7/16	27.40	30.00	34.80	37.90	43.00	46.50	54.50	63.50
27-28	"	30.20	32.80	37.90	41.20	46.50	50.50	59.50	68.50
29-30	"	33.20	36.00	40.20	44.70	50.50	55.00	64.00	74.00
31-32	"	36.40	39.40	45.00	49.00	55.00	59.00	69.50	80.00
33-34	"	39.50	44.00	47.60	53.50	58.00	63.50	74.50	86.50
35-36	"	.....	46.30	53.50	57.50	64.00	69.00	80.00	93.00
37-38	"	.....	50.70	57.60	62.00	70.00	74.50	85.50	100.00
39-40	"	.....	55.00	63.20	67.00	74.50	80.00	93.50	108.00
41-42	"	.....	59.20	67.00	72.00	80.00	86.00	100.50	116.00
43-44	"	.....	64.00	72.00	77.50	86.00	92.50	108.00	123.50
45-46	"	.....	69.00	77.40	80.70	92.00	99.00	116.00	133.00
47-48	"	.....	73.20	82.50	89.00	98.00	106.00	125.50	142.00
49-50	4 15/16	.....	.....	.....	95.50	105.00	114.50	134.50	152.00

EXTRA CHARGES—Cast Iron Pulleys—SINGLE ARM

Extra Charges will be made for special features in accordance with the following schedule. Extra charges involving percentage additions apply to the list prices of Single Arm solid or split pulleys as required. Where more than one special feature involving percentage additions is wanted, each extra percentage is based upon the list price of the standard pulley.

Pulley Diameter in Inches	Maximum Bore at Regular Price	Large Bore Extras — Pulleys with bores larger than shown in pulley List as "Maximum Bore At Regular Price," take the following extras.	Tight and Loose Pulleys Extras for one pair Style "A" — Width of face 3-4	5-6	7-8	10-12	Arms Offset—Hubs Offset Hubs to Exact Length (Price includes facing hub ends.) — Width of face 3-4	5-6	7-8	10-12	14 & up	Flange Extras Outside Or Inside — Single	Double
3- 5	1 3/16	10% for each additional 1/4" or part thereof	$2.40	$3.60	.....	.....	$1.20	$1.80	$2.40	$3.00	$3.60	$4.00	$6.00
6- 9	2 3/16	10% for each additional 1/4" or part thereof	2.60	4.00	6.00	.....	1.30	2.00	3.00	4.00	5.00	5.00	7.50
10-16	2 11/16	10% for each additional 1/2" or part thereof	3.30	4.70	6.80	16.00	1.65	2.35	3.40	8.00	10.00	6.00	9.00
17-24	3 11/16	10% for each additional 1/2" or part thereof	3.90	5.80	13.70	18.00	1.95	2.90	6.85	9.00	11.00	8.00	12.00
25-48	4 3/16	10% for each additional 1" or part thereof	6.70	11.00	15.00	28.00	3.35	5.50	7.50	14.00	16.00	12.00	18.00
49-60	4 13/16	5% for each additional 1" or part thereof	.....	15.00	18.80	37.00	4.70	7.50	9.40	18.50	21.00	20.00	30.00
61-72	5 13/16	5% for each additional 1" or part thereof	.....	.....	.....	.....	.....	9.50	11.50	22.00	25.00	30.00	45.00

Diameter Extras—

(a) **Fractional Diameters**—Use standard list plus 50%.

(b) **Exact Diameters**—Use standard list plus 50%. (Diameter measured at center of face.)

Face Width Extras—

(a) **Fractional Face**—Pulleys with faces specified in fractions of 1/2" or more take list of next wider face shown.

(b) **Exact Face**—Pulleys with faces specified "Exact" take list plus 20%. This "Exact Face" will have tolerance of plus or minus .010".

(c) No Extra for fractional faces of less than 1/2" unless specified "Exact."

Rim Thickness Extras—

(a) Pulleys listed are designed to normal double belt service of 65 pounds effective tension per inch width of face.

(b) **"Extra Heavy"** pulleys will be built for 120 pounds effective tension per inch width of face and take regular list plus 25%. Horsepower, speed and service conditions should always be given when ordering **Extra Heavy Pulleys.**

(c) **High Crown**—Pulleys specified with crown greater than 1/8" per foot take list plus 25%.

Bore Extras—

(a) **Large Bore**—See table at top of page.

(b) **Standard bore** tolerances are shown on page 2.

(c) **Special bores** not covered by "a" or "b". Price on application.

Hub Extras—

(a) **Hubs longer than standard**—See extra in table above.

(b) **Offset Hubs or Arms**—See extra in table above.

(c) **Split Hubs**—Pulleys with solid rims and split hubs. To solid list add one half the difference between solid and split list.

(d) **Clamp Hubs**—Pulleys with solid rims and hubs split on one side only. To solid list add one half the difference between solid and split list.

(e) **Special Hubs**—Not covered by above. Price on application.

Keyseats-Additional—

(a) One straight keyseat with two set screws or one taper keyseat without set screws is included in regular price of pulley.

(b) **Extra Keyseats**—See table below. Extra keyseats can be placed at any angle in solid hubs or 180° from regular keyseat in pulleys with split hubs.

List for One Extra Keyseat Straight or Taper, for Different Face Widths

Pulley Face	KEYSEAT SIZE 1/16-1/4	5/16-3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2
Up to 6" Face	$2.40	$2.55	$2.70	$2.90	$3.25	$3.75	$4.50	$5.50	$6.75	$8.25	$9.75
Each Extra 4"	.40	.60	.80	1.00	1.30	1.50	2.00	2.50	3.00	4.00	5.50

High Speed Extras—

(a) Pulleys are regularly balanced for a rim speed of 4000 Feet per minute. When higher speeds are involved it is essential that pulleys be balanced with particular accuracy and an extra charge of 20% will be made.

(b) For extremely high speeds a static balance is not sufficient and pulleys should be given a dynamic or running balance. Price on application.

Web Center Extras—

(a) Solid pulleys with web center up to 24" diameter—List plus 50%.

(b) Split pulleys with web center up to 24" diameter—List plus 100%.

(c) Web Center Pulleys larger than 24" diameter. Price on application.

Motor Pulleys, Single or Multiple Arm—Use the catalogue list of pulley, add any extras involved, and to total thus obtained add 25%.

Taper Cone Pulleys, Single or Multiple Arm—Use list of standard pulley based on the largest diameter. Add 50% for cone feature and extras for large bore if involved. No other extras applicable.

Specials—Step cone pulleys, double crown pulleys, fly wheels and other specifications not covered by extras mentioned in this book—price on application.

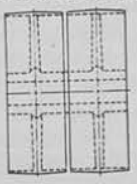
Tight and Loose Pulley Extras—

(a) **Style "A"** tight and loose pulleys will be furnished unless otherwise specified, the extra shown in table above should be added to the list of two regular pulleys. Both pulleys will be of the same diameter and have crown face. Loose pulley will be tapped for fitting.

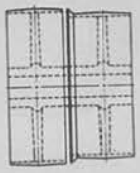
(b) **Style "B"** tight and loose pulleys will have the loose pulley somewhat smaller than the tight pulley and will have a bevel flange to match the tight pulley diameter. Price is obtained by adding to the list of two regular pulleys the Type "A" Loose pulley extra plus list of a "Single Flange"—See table above.

Bronze Bushed Pulleys. Price on application.

Style "A" Tight and Loose Pulleys



Style "B" Tight and Loose Pulleys



Rim Flange Extras—

(a) Outside or Inside Flanges—Extras shown in table at top of page.

Split Arm Extras—

(a) Pulleys split through the arm take split list plus 30%.

Rubber Lagging—Price list on pages 4 and 5.

Fitting Pulleys on Shaft—Price list below.

EXTRA CHARGES—Cast Iron Pulleys—MULTIPLE ARM

Diameter Extras—

(a) Fractional Diameters—Use standard List plus 50%.

(b) Exact Diameters—Use standard List plus 50%. (Diameter measured at center of face.)

Face Width Extras—

(a) Fractional Face—Pulleys with faces specified in fractions of 1/2" or more, take List of next wider face shown.

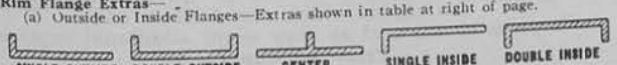
Rim Thickness Extras—

(a) **"EXTRA HEAVY" Pulleys** can be furnished when the effective Belt tension per inch width of face is greater than 120 pounds and will take regular list plus 25%. Horsepower, speed and service conditions should always be given when ordering **"EXTRA HEAVY" Pulleys.**

(b) **High Crown**—pulleys specified with crown greater than 1/8" per foot take list plus 25%.

Rim Flange Extras—

(a) Outside or Inside Flanges—Extras shown in table at right of page.



Bore Extras—

(a) **Large Bore**—See table below.

(b) **Standard Bore** tolerances are shown on page 2.

(c) **Special bores** not covered by "a" or "b", prices on application.

Pulley Diameter in Inches	Maximum Bore at Regular Price	Large Bore Extras — Pulleys with bores larger than shown in this table as "Maximum Bore at regular price" take following extras.	Flange Extras Outside or Inside — Single	Double
12-16	3 3/16	10% for each 1/4" or part thereof	$3.80	$5.70
18-24	4 3/16	10% " " 1/2" " " "	5.00	7.50
26-48	5 3/16	10% " " 1" " " "	7.50	10.25
50-60	6 13/16	5% " " 1" " " "	12.50	18.75
62-72	7 13/16	5% " " 1" " " "	18.80	28.20

High Speed Extras—

(a) Pulleys are regularly balanced for a rim speed of 4000 Feet per minute. When higher speeds are involved it is essential that pulleys be balanced with particular accuracy and an extra charge of 20% will be made.

Split Arm Extras—

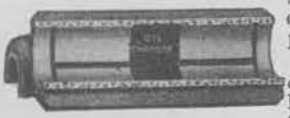
(a) Pulleys split through the arm take split list plus 30%.

Rubber Lagging—Price List on pages 4 and 5.

Fitting Pulleys on Shaft—Price List on page 6.

Split Loose Bushings

For Tight and Loose Pulleys



Easily placed upon the shaft, with a split pulley. Not necessary to take down the shaft or to disturb any of the other equipment. Cast in one piece, bored and turned and then split by fracture. Uneven ragged edges bring the two halves together to a smooth, accurate fit. Held securely by compression of pulley hub.

Reservoir in center holds lubricating oil. Circular and lengthwise grooves distribute it evenly in the bearing, returning it to the oil chamber when the pulley is not in motion. Oil chamber is filled through a convenient spring oiler.

O. D. Ins.	Each	Bore, Ins.	Lgth. Ins.	O.D. Ins.	Each	Bore, Inches	Lgth. Ins.
2 7/16	3.45	1–1 3/4	4 1/2	3 7/16 & 3 1/2	4.95	1 3/16 –2 3/4	5 1/2
2 7/16	3.85	1–1 3/4	5 1/2	3 7/16 & 3 1/2	5.50	1 3/16 –2 3/4	6 1/2
2 7/16	4.30	1–1 3/4	6 1/2	3 7/16 & 3 1/2	6.50	1 3/16 –2 3/4	7 1/2
2 7/16	4.75	1–1 3/4	7 1/2	3 7/16 & 3 1/2	8.30	1 3/16 –2 3/4	9 1/2
2 15/16	3.85	1–2 3/16	4 1/2	3 7/16 & 3 1/2	9.50	1 3/16 –2 3/4	10 1/2
2 15/16	4.50	1–2 3/16	5 1/2	3 7/16 & 3 1/2	10.70	1 3/16 –2 3/4	12 1/2
2 15/16	5.00	1–2 3/16	6 1/2	4 7/16	8.00	1 15/16–3 7/16	6 1/2
2 15/16	5.50	1–2 3/16	7 1/2	4 7/16	9.00	1 15/16–3 7/16	7 1/2
2 15/16	6.50	1–2 3/16	9 1/2	4 7/16	10.90	1 15/16–3 7/16	9 1/2
2 15/16	7.00	1–2 3/16	10 1/2	4 7/16	12.20	1 15/16–3 7/16	10 1/2
2 15/16	8.00	1–2 3/16	12 1/2	4 7/16	14.50	1 15/16–3 7/16	12 1/2
3 7/16–3 1/2	4.30	1 3/16–2 3/4	4 1/2				

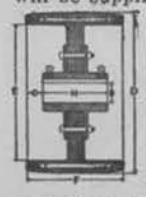
Rockwood Paper Pulleys

Rockwood Paper Pulleys overcome in a large degree the annoyance and loss caused by slipping belts. The lighter tension on the belt permits lighter shafting, hangers, etc., reduces consumption of oil and loss from hot bearings. Tighteners are not necessary.

Rockwood Paper Pulleys may be run at high rates of speed with safety, because there are no shrinkage strains as in cast iron pulleys nor numerous pieces as in wood pulleys. Rockwood Paper Pulleys are lighter than cast iron pulleys for a given service, less freight —easier to put on.

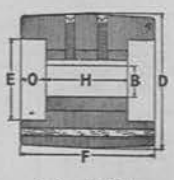
Every pulley is turned inside and out—perfectly balanced—and all workmanship is accurate. Pulleys are guaranteed to fit shafts of the exact dimensions for which they are intended without reaming or filling.

Rockwood Paper Pulleys can be used wherever it is practical to use a belt. When pulleys are to be used out of doors or in particularly damp surroundings they will be supplied specially waterproofed.



To Order

For pulleys made-to-order specify dimensions indicated by letters, if these are essential.



Rockwood construction permits unusual flexibility—any pulley to customers' specifications up to 72 inches diameter. No extra charges for unusual specifications, such as fractional dimensions, hubs out of center, double crowns, etc.

Rockwood Paper Pulleys

Will fit practically any make of driving or driven machine. Overcomes in a large degree the annoyance and loss caused by slipping belts. The lighter tension on the belt permits lighter shafting, hangers, etc. Tighteners are not necessary.

Dia. In.	Face, In.	Bores Inches	Diameter Inches	Total Face Inches	Bores Inches
1 1/2	1 3/4	1/2 to 3/4	8	8 3/4	1 3/8 to 2 1/2
1 1/2	2 1/2	1/2 to 3/4	8	9 3/4	1 1/2 to 2 5/8
2	1 3/4	1/2 to 7/8	8	11	1 5/8 to 2 3/4
2	2 1/2	1/2 to 7/8	8	12	1 3/4 to 2 7/8
2	3 1/2	1/2 to 7/8	9	3 1/2	7/8 to 1 5/8
2 1/2	1 3/4	1/2 to 7/8	9	4 1/2	7/8 to 2
2 1/2	2 1/2	1/2 to 1 1/8	9	5 1/2	1 to 2 1/4
2 1/2	3 1/2	1/2 to 1 1/8	9	6 3/4	1 1/8 to 2 3/8
2 1/2	4 1/2	5/8 to 1 1/8	9	7 3/4	1 3/8 to 2 1/2
3	1 3/4	1/2 to 1	9	8 3/4	1 3/8 to 2 5/8
3	2 1/2	1/2 to 1 1/8	9	9 3/4	1 1/2 to 2 3/4
3	3 1/2	1/2 to 1 3/8	9	11	1 5/8 to 2 7/8
3	4 1/2	5/8 to 1 3/8	9	12	1 3/4 to 3
3	5 1/2	3/4 to 1 3/8	9	13	1 7/8 to 3 1/8
3 1/2	1 3/4	1/2 to 1	10	3 1/2	1 to 1 5/8
3 1/2	2 1/2	1/2 to 1 1/8	10	4 1/2	1 to 2 1/8
3 1/2	3 1/2	5/8 to 1 3/8	10	5 1/2	1 1/8 to 2 3/8
3 1/2	4 1/2	3/4 to 1 5/8	10	6 3/4	1 1/8 to 2 1/2
3 1/2	5 1/2	7/8 to 1 5/8	10	7 3/4	1 3/8 to 2 5/8
4	1 3/4	1/2 to 1	10	8 3/4	1 3/8 to 2 3/4
4	2 1/2	1/2 to 1 1/4	10	9 3/4	1 1/2 to 2 7/8
4	3 1/2	5/8 to 1 1/2	10	11	1 5/8 to 3
4	4 1/2	3/4 to 1 3/4	10	12	1 3/4 to 3 1/8
4	5 1/2	7/8 to 1 7/8	10	13	1 7/8 to 3 1/4
4	6 3/4	1 to 2	11	3 1/2	1 to 1 5/8
4 1/2	2 1/2	1/2 to 1 3/8	11	4 1/2	1 to 2 1/8
4 1/2	3 1/2	5/8 to 1 1/2	11	5 1/2	1 1/8 to 2 5/8
4 1/2	4 1/2	3/4 to 1 3/4	11	6 3/4	1 1/4 to 2 1/2
4 1/2	5 1/2	7/8 to 1 7/8	11	7 3/4	1 3/8 to 2 5/8
4 1/2	6 3/4	1 to 2	11	8 3/4	1 3/8 to 2 3/4
5	2 1/2	1/2 to 1 1/2	11	9 3/4	1 1/2 to 2 7/8
5	3 1/2	5/8 to 1 5/8	11	11	1 5/8 to 3
5	4 1/2	3/4 to 1 3/4	11	12	1 3/4 to 3 1/8
5	5 1/2	7/8 to 1 7/8	11	13	1 7/8 to 3 1/4
5	6 3/4	1 to 2	12	3 1/2	1 to 1 5/8
5	7 3/4	1 1/8 to 2 1/8	12	4 1/2	1 to 1 7/8
5 1/2	2 1/2	5/8 to 1 1/2	12	5 1/2	1 1/8 to 2 1/2
5 1/2	3 1/2	5/8 to 1 5/8	12	6 3/4	1 1/4 to 2 5/8
5 1/2	4 1/2	3/4 to 1 3/4	12	7 3/4	1 3/8 to 2 5/8
5 1/2	5 1/2	7/8 to 1 7/8	12	8 3/4	1 3/8 to 2 7/8
5 1/2	6 3/4	1 to 2	12	9 3/4	1 1/2 to 3
5 1/2	7 3/4	1 1/8 to 2 1/8	12	11	1 5/8 to 3 1/8
5 1/2	8 3/4	1 3/8 to 2 3/8	12	12	1 3/4 to 3 1/4
6	2 1/2	5/8 to 1 1/4	12	13	1 7/8 to 3 3/8
6	3 1/2	5/8 to 1 5/8	13	3 1/2	1 to 1 5/8
6	4 1/2	3/4 to 1 7/8	13	4 1/2	1 1/8 to 1 7/8
6	5 1/2	7/8 to 2	13	5 1/2	1 1/4 to 2 1/2
6	6 3/4	1 to 2 1/8	13	6 3/4	1 3/8 to 2 5/8
6	7 3/4	1 1/8 to 2 1/4	13	7 3/4	1 3/8 to 2 3/4
6	8 3/4	1 3/8 to 2 3/8	13	8 3/4	1 1/2 to 2 7/8
6	9 3/4	1 1/2 to 2 1/2	13	9 3/4	1 5/8 to 3
7	3 1/2	3/4 to 1 3/4	13	11	1 5/8 to 3 1/8
7	4 1/2	7/8 to 1 7/8	13	12	1 3/4 to 3 1/4
7	5 1/2	1 to 2 1/8	13	13	1 7/8 to 3 3/8
7	6 3/4	1 1/8 to 2 1/4	14	3 1/2	1 to 1 5/8
7	7 3/4	1 1/4 to 2 3/8	14	4 1/2	1 1/8 to 1 7/8
7	8 3/4	1 3/8 to 2 1/2	14	5 1/2	1 1/4 to 2 5/8
7	9 3/4	1 1/2 to 2 5/8	14	6 3/4	1 3/8 to 2 3/4
7	11	1 5/8 to 2 3/4	14	7 3/4	1 1/2 to 2 7/8
8	3 1/2	3/4 to 1 3/4	14	8 3/4	1 1/2 to 3
8	4 1/2	7/8 to 1 7/8	14	9 3/4	1 5/8 to 3 1/8
8	5 1/2	1 to 2 1/8	14	11	1 3/4 to 3 1/4
8	6 3/4	1 1/8 to 2 1/4	14	12	1 7/8 to 3 3/8
8	7 3/4	1 1/4 to 2 3/8	14	13	2 to 3 1/2

Bore ranges: Up to 2 in., available in each 1/8 in. Above 2 in., in each 1/4 in.; 2 7/8 & 2 7/8 in. bores available.

Offset and Standard Keys

When specifying pulleys advise size of keyway in shaft. If ordered, we can supply either standard or offset keys as shown and at very slight additional expense.

Prices on Application

General Summary of Link-Belt Chain

In order to acquaint the reader in a general way with the different classes of chain, we have prepared the following summary which briefly describes the construction and application of the various standard chains.

Ewart Detachable Link-Belt

Ewart Detachable Link-Belt is the standard for the transmission of power where the strains are not too great, and the speeds not too high; also for conveyors and elevators of moderate capacities and lengths.

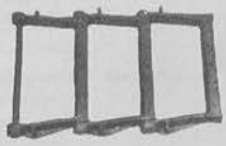
"400" Class Pintle Chain

400 Class Pintle Chain was designed to operate on same sprocket wheels as Ewart Link-Belt, and furnish greater strength; or protect the joint from gritty materials, where the open hook would be objectionable. Furnished either riveted or detachable.

"H" Class Saw Mill Pintle Chain

H Class Saw Mill Pintle Chain is of similar joint construction to "400" Class Chain, but provided with ample wearing shoes for protection against the effects of dragging or sliding in troughs, or on floors and runways, in conveyors and transfers.

"H" Class Refuse Chain



H Class Refuse Chain is similar to "H" Class Pintle Chain, but broader, for conveying general mill refuse in quantity, slabs, saw-dust, etc. Front of barrel is shaped to act as pusher.

Transfer Chain

Transfer Chain Links assembled with Safe-T-Head Rivets; adapted to slide in runways and carry lumber, boxes, bar iron, etc., on top of parallel strands of chain. Made in "Roof Top" construction, or with flat tops, broad or narrow.

"C" Class "Combination" Chain

A combination of alternate cast block links (Malleable Iron, PROMAL, or Cast Steel), and outside bar steel side bars, connected by steel pins or rivets. Also made in "Log-Lugger" design.

"700" Class Chain

700 Class Chain is similar to "400" Class Pintle Chain, but of heavier design and longer pitch. Assembled with Safe-T-Head Pins. A strong serviceable chain for heavy elevator, coneyor and power transmission work.

"800" Class Ley Bushed Chain

Has renewable hardened steel bushings which are exposed to the wheel, to resist wear between chain and wheel, besides resisting wear between links and pins.

"1100" Class Roller Chain

Side bars cast with projections at one end which telescope, forming rigid barrel over which roller turns freely. A substantial and durable roller chain.

"MR" Class Roller Chain

MR Class Roller Chain has rollers turning on barrels formed by abutting instead of telescoping end bar projections from side bars. Used for power transmissions, and elevator and conveyor installations.

Ice Chain

("SS" Class). Low priced, simple and strong chain for elevators and conveyors handling ice, coal, or packing house products, etc.

"EC" Class Chain

A light steel bushed roller chain, strong for its weight, to be used for moderately high-speed drives. An economical power transmission chain, efficient, accurately pitched.

"SS" Class Steel Chain

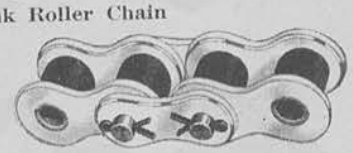
SS Class

The short pitches for drives; made with offset or straight side bars; with or without bushing or rollers, to meet conditions requiring extra strength, ruggedness and durability.

Engineering SS Class

Long pitch chains for engineering work; made with plain carbon steels, or special alloys, special heat treatments, etc., for varied conditions of service.

Silverlink Roller Chain



Silverlink Roller Chain is a high grade Bushed Roller Chain, accurately made of special steels, to close tolerances and run on cut tooth wheels.

Link-Belt Silent Chain

The most efficient and durable medium for the transmission of power at high speeds. Used for driving machines in every industry; also in very wide use for front end drives on motor cars.

Special Chains

As well as the standard lines of chains illustrated above and described more fully on the following pages, many chains of special design are manuactured with a variety of attachments for many different applications.

Generally chains can be supplied galvanized or tinned, or can be made in copper bearing malleable, copper bearing Promal, or malleable alloyed with copper and some other alloying element, aluminum bronze, phosphor bronze, manganese bronze, stainless steel or chromium nickel alloys, for use where they are subjected to the corrosive action of acids or the elements.

They are also made in heat resisting alloys for chains operating in high temperatures.

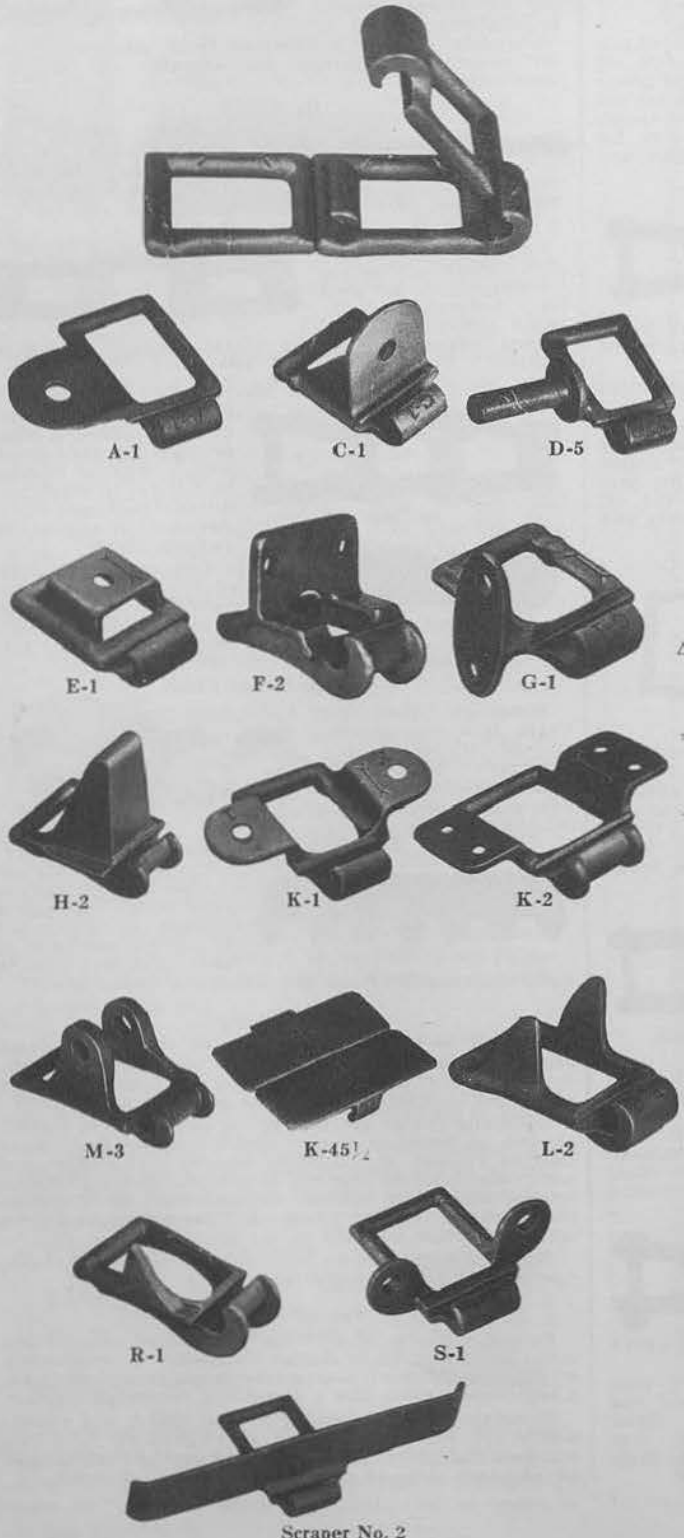
Promal Chains

Promal chain is made from a processed cast ferrous metal developed by Link-Belt Limited. In comparison with malleable iron it shows exceptional tensile strength, a high elastic limit, and a surprising resistance to wear.

Dimensions and weights of Promal chains and attachments are the same as for corresponding Link-Belt standard malleable iron chains, and can be furnished in all standard sizes of cast chains and attachments.

Ewart Detachable Link-Belt

Malleable Iron or PROMAL



Scraper No. 2

PLAIN CHAINS

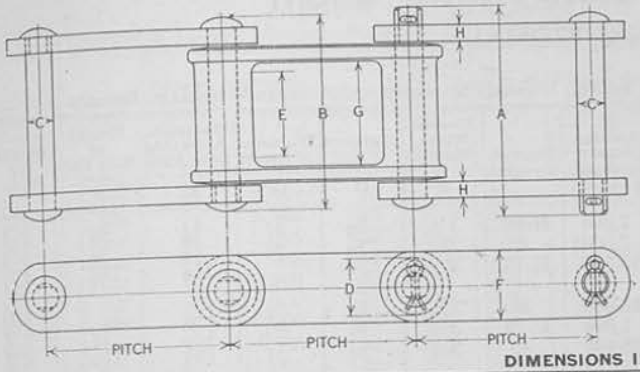
Link-Belt Number	Plain Link-Belt Per Foot: Malleable Iron	Plain Link-Belt Per Foot: PROMAL	Approximate Links in 10 Feet	△ Average Ultimate Strength, Mall. Iron	Approximate Weight Per 10 Feet
25	**$0.17**	$0.20	133	700	2.4
32	**.17**	.20	104	1100	3.5
33	**.16**	.19	86	1190	3.3
34	**.18**	.21	86	1300	4.0
42	**.19**	.23	88	1500	5.5
45	**.18**	.22	74	1600	5.2
50	**.22**	.27	87	1900	7.1
51	**.24**	.29	104	1900	7.0
52	**.23**	.29	80	2300	8.0
55	**.20**	.25	74	2200	7.2
57	**.26**	.32	52	2800	8.6
62	**.27**	.34	73	3100	10.6
67	**.30**	.38	52	3300	11.5
75	**.33**	.42	46	4000	13.4
77	**.35**	.44	52	3600	14.5
78	**.44**	.54	46	4900	18.8
85	**.62**	.77	30	7600	24.7
88	**.50**	.62	46	5750	24.0
95	**.68**	.84	30	8700	30.0
103	**.73**	.92	39	9600	40.0
108	**.80**	1.00	25½	9900	36.0
114	**.92**	1.15	37	11000	53.0
124	**1.08**	1.35	30	15000	66.0

△Average Ultimate Strength for PROMAL Chain is approximately 20% higher than for Malleable Iron.

ATTACHMENTS

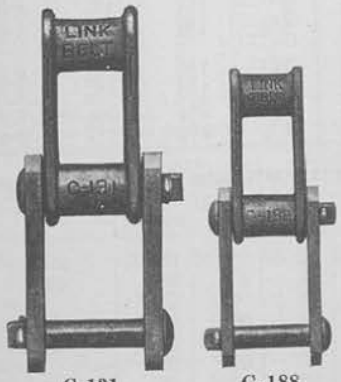
Link-Belt Number	Price per Ft.: Mall. Iron	Price per Ft.: PROMAL	Wt. Per 10 Ft.	Link-Belt Number	Price per Ft.: Mall. Iron	Price per Ft.: PROMAL	Wt. Per 10 Ft.
25 A-1	**$0.36**	$0.42	3.9	62 C-1	**$0.50**	$0.62	18.0
25 C-1	**.39**	.46	4.5	62 D-5	**.74**	.89	20.4
25 H-2	**.42**	.49	5.3	62 K-1	**.54**	.64	16.9
25 K-1	**.40**	.45	4.8	62 K-40	**.80**	1.01	26.7
32 A-1	**.36**	.42	5.0	67 A-1	**.51**	.60	15.5
32 K-1	**.43**	.50	7.9	67 F-2	**.65**	.78	21.8
33 K-1	**.37**	.42	6.0	67 K-1	**.58**	.70	19.0
33 S-1	**.40**	.47	6.1	75 F-2	**.70**	.86	26.0
34 K-1	**.41**	.47	7.4	75 H-1	**.70**	.84	22.8
42 A-1	**.35**	.42	7.0	75 K-1	**.57**	.68	18.5
42 C-1	**.44**	.53	10.8	77 A-1	**.56**	.67	18.9
42 K-1	**.42**	.49	9.6	77 F-2	**.78**	.96	31.1
42 S-1	**.43**	.51	8.2	77 G-1	**.66**	.81	25.5
45 A-1	**.35**	.41	7.5	77 K-1	**.66**	.79	21.3
45 C-1	**.37**	.44	9.4	78 F-2	**.84**	1.05	36.0
45 E-1	**.31**	.38	7.5	78 K-1	**.66**	.81	25.0
45 F-2	**.46**	.55	9.4	78 M-3	**1.20**	1.42	37.0
45 K-1	**.39**	.46	9.0	78 R-1	**.58**	.71	21.5
45 K-40	**.65**	.78	15.5	85 K-2	**1.02**	1.26	37.9
45 K-45½	**1.15**	1.34	22.0	88 A-11	**.78**	.98	33.0
45 K-91	**.85**	.97	18.0	88 F-2	**.94**	1.18	41.4
45 S-1	**.40**	.46	7.8	88 H-2	**1.02**	1.28	44.0
52 A-1	**.42**	.50	10.4	88 K-1	**.78**	.96	33.5
52 F-2	**.59**	.70	16.0	88 M-3	**1.54**	1.80	43.0
52 K-1	**.50**	.60	12.7	88 R-1	**.68**	.84	26.0
55 A-1	**.37**	.43	9.5	95 K-2	**1.12**	1.38	46.5
55 C-1	**.38**	.46	11.5	103 F-2	**1.30**	1.62	61.0
55 E-1	**.35**	.42	9.8	103 F-8	**1.52**	1.90	70.1
55 F-2	**.52**	.61	13.5	103 G-6	**1.40**	1.76	64.0
55 K-1	**.42**	.50	11.0	103 H-2	**1.30**	1.62	57.0
55 K-45½	**.94**	1.10	25.5	103 K-1	**1.12**	1.40	52.0
55 S-1	**.45**	.52	10.0	103 K-2	**1.16**	1.46	55.4
55 S-5	**.45**	.53	11.5	108 K-2	**1.16**	1.44	55.7
57 A-1	**.41**	.49	12.5	114 F-8	**1.90**	2.36	81.0
57 F-2	**.63**	.76	19.5	114 K-1	**1.50**	1.88	71.9
57 K-1	**.51**	60	15.0	124 F-8	**2.36**	2.94	116.6
62 A-1	**.48**	57	15.0	124 K-1	**1.90**	2.42	97.6

Link-Belt "C" Class "Combination" Chain



Malleable Iron or PROMAL

A combination of alternate cast block links (Malleable Iron, PROMAL, or Cast Steel), and outside bar steel side bars, connected by steel pins or rivets. An ideal chain for elevator and conveyor service.



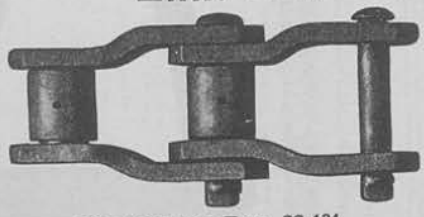
C-131 Pitch—3.075" C-188 Pitch—2.609"

DIMENSIONS IN INCHES, AND AVERAGE STRENGTHS IN POUNDS

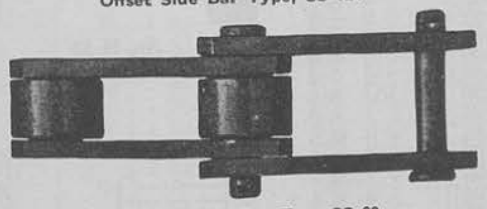
Link-Belt Chain Number	Average Pitch	Approx. Links in 10 Feet	△Average Ultimate Strength Mall. Iron	Overall Width Detachable A	Overall Width Riveted B	Diam. of Pin C	Diam of Barrel D	Max. Allow. Spkt. Face E	Height of Side Bar F	Inside Width Center Link G	Thickness Side Bar H
C-55	1.631	74	9,000	1 31/32	1 15/16	3/8	23/32	11/16	3/4	27/32	3/16
C-60	2.307	52	17,500	2 7/8	2 11/16	1/2	3/4	7/8	1	1 1/8	1/4
C-77	2.308	52	11,000	2 1/8	2	7/16	23/32	11/16	7/8	7/8	5/16
C-102	4.000	30	18,000	4 5/16	4 3/16	1/2	31/32	2	1 1/2	2 5/32	3/8
C-102B	4.000	30	24,000	4 5/16	4 3/16	5/8	31/32	2	1 1/2	2 5/32	3/8
C-102B-C	4.000	30	24,000	4 5/16	4 3/16	5/8	31/32	2	1 1/2	2 5/32	3/8
C-102½	4.040	30	36,000	4 15/16	4 5/16	3/4	1 3/8	2	1 3/4	2 9/32	5/8
C-110	6.000	20	24,000	4 9/16	4 3/16	5/8	1 1/4	1 15/16	1 1/2	2 5/32	3/8
C-110-C	6.000	20	24,000	4 9/16	4 3/16	5/8	1 1/4	1 15/16	1 1/2	2 5/32	5/8
C-111	4.760	25½	36,000	5 1/4	4 3/4	3/4	1 7/16	2 3/8	1 3/4	2 5/8	3/8
C-111-C	4.760	25½	36,000	5 1/4	4 3/4	3/4	1 7/16	2 3/8	1 3/4	2 5/8	5/8
C-111 Sp.	4.760 7.240	20	36,000	5 1/4	4 3/4	3/4	1 7/16	2 3/8	1 3/4	2 5/8	3/8
C-111-CSp.	4.760 7.240	20	36,000	5 1/4	4 3/4	3/4	1 7/16	2 3/8	1 3/4	2 5/8	3/8
C-131	3.075	39	24,000	3 3/8	3 1/4	5/8	1 7/32	1 1/8	1 1/2	1 5/8	3/8
C-131-C	3.075	39	24,000	3 3/8	3 1/4	3/8	1 7/32	1 1/8	1 1/2	1 5/8	5/8
C-132	6.050	20	50,000	6 5/8	6 1/16	1	1 23/32	3 1/8	2	3 5/16	1/2
C-132-C	6.050	20	50,000	6 5/8	6 1/16	1	1 23/32	3 1/8	2	3 5/16	1/2
C-133	6.000	20	45,000	4 5/16	3 5/8	7/8	1 3/4	1 1/4	2	1 7/16	5/8
C-188	2.609	46	14,000	2 7/8	2 1/2	1/2	7/8	15/16	1 1/16	1 1/16	1/4

△Average Ultimate Strength for **PROMAL** Chain is approximately 15 to 20% higher than for Malleable Iron.

Link-Belt "SS" Class Steel Roller Chain



Offset Side Bar Type, SS-124



Straight Side Bar Type SS-60

SS Class Link-Belt Steel Chains meet the demand for chains of greater capacity, strength and durability, that are called for by much of the present day requirements in industrial conveying, material handling and power transmission machinery.

Modern methods of heat treating and hardening carbon and alloy steels, and the great advance in tool, die and stamping machinery, together with long and active experience in the manufacture and application of chains, have all combined to produce an efficient line of steel chains which are adequate for almost any character of duty or installation.

The different types in which SS Chains are furnished are briefly described as follows:

Steel Bushed Roller Chain with Offset Side Bars

The standard type of steel chain for medium and heavy duty drives, at speeds up to 700 f.p.m. Maximum speeds of 300 to 400 f.p.m. are preferable for economical operation of the heavier longer pitch chains, while the shorter pitch chains will give excellent service at the higher speeds.

SS+ (Plus) Chains, viz.: Nos. SS-88+, SS-40+ and SS-124+, are recommended for extremely heavy duty drive chain service, and for high speed drives. They are designed to withstand continuous and terrific strains due to sudden shocks, uneven loading, overloading, or abusive treatment, at high speeds, and in extremely heavy duty.

Steel Bushed Roller Chain with Straight Side Bars

These meet the demand for stronger, more durable and dependable roller chains for conveyors and elevators. The stresses and wear are distributed over large bearing areas in the side bars, pins, bushings, and rollers.

The longer pitch chains (4-inch and over) are satisfactory and economical for general conveyor service, while the shorter pitch chains are useful in certain types of special machinery or equipment where the chains must operate efficiently in confined spaces, on short centers, or at fairly high speeds.

SS Class Long Pitch Engineering Chain

The standard for large installations where great strength and durability are required. Extensively used for heavy steel apron conveyors, open top carriers, and heavy steel bucket elevators. Made in pitches 9 inches and longer, for slow speeds and heavy loads. Furnished with rollers of various types and sizes, in gray iron, white iron, chrome iron, or Flint-Rim metal, according to requirements.

Link-Belt "H" Class Pintle Chain

Malleable Iron or PROMAL

LINK-BELT "H" Class Pintle Chain, also known as "Riveted Sawmill" chain, was designed primarily for the sawmill industry, for power transmission, transfer, and conveying purposes, but is also used for a large variety of general industrial applications. Its well balanced design, with correctly proportioned members, is the result of years of experience in the design and manufacture of conveying and drive chains, and their application throughout the industries of the world.

Dimensions in Inches; Ultimate Strengths and Average Weights in Pounds

Link-Belt Chain Number	Average Pitch	Approx. Links in 10 Feet	△ Average Ultimate Strength, Mall. Iron	Runs on Sprocket	Overall Width, *Riveted B	Diameter of Pin C	Diameter of Barrel D	Maximum Allowable Spkt. Face E	Height of Side Bar F	Weight per Foot
H-60	**2.308**	**52**	**7,000**	**H-60**	2 5/8	5/16	3/4	3/4	3/4	2.1
H-62	1.654	73	7,000	62	2 3/8	5/16	9/16	7/8	3/4	2.4
H-73	2.353	51	13,500	H-73	3 1/8	7/16	1	1 1/8	1 1/8	4.0
H-74	**2.609**	**46**	**10,000**	**88**	2 7/8	3/8	7/8	1	1	3.0
H-75	**2.609**	**46**	**7,000**	**H-75**	2 7/8	5/16	23/32	1	3/4	2.2
H-78	**2.609**	**46**	**16,000**	**88**	3 1/4	1/2	7/8	1 1/8	1 1/8	4.2
H-79	2.609	46	16,000	88	3 1/4	1/2	7/8	1 1/8	1 1/8	4.8
H-78 1/2	2.609	46	18,000	H-78 1/2	3 3/8	9/16	1	1 1/8	1 1/8	5.0
H-82	**3.075**	**39**	**20,000**	**103**	3 7/8	9/16	1 7/32	1 1/4	1 1/4	5.5
H-87	4.000	30	25,000	H-87	4 3/8	5/8	1 3/8	1 1/2	1 3/8	6.5
H-95	4.000	30	16,000	85	4 3/8	1/2	1 1/8	1 7/8	1 3/16	4.9
H-108	4.720	25 1/2	19,000	108	5 1/4	9/16	1 1/8	2 3/8	1 1/4	5.9
H-124	**4.000**	**30**	**30,000**	**H-124**	4 7/8	3/4	1 7/16	1 5/8	1 9/16	8.8

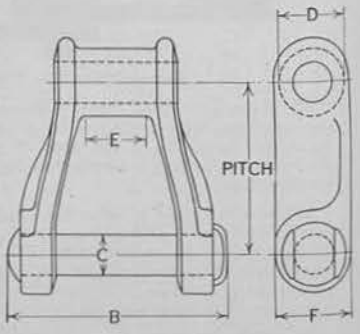
*Riveted type chain is standard.
△Average Ultimate Strength for PROMAL Chain is approximately 15 to 20% higher than for Malleable Iron.

List Prices, and Average Weights in Pounds

Link-Belt Chain Number	Price, per Foot: Malleable Iron	Price, per Foot: PROMAL	Extra Price per Foot for Detach. Construction	Weight, per Foot
H-60 Plain	$0.72	$ 0.86		2.1
H-60-F4	1.70	2.00		4.7
H-60-F15	1.70	2.00		4.8
H-60-H2	1.30	1.54		3.4
H-60-K1	1.20	1.38	$0.08	2.8
H-60-R1/4	.95	1.10		2.0
H-60-R1	1.05	1.22		2.4
H-60-RR	.95	1.12		2.5
H-62 Plain	.90	1.04		2.4
H-62-A12	1.40	1.60	.10	2.7
H-62-RR	1.50	1.68		2.7
H-73 Plain	1.05	1.28		4.0
H-73-F4	2.30	2.75		7.5
H-73-K1	1.80	2.12		5.4
H-73-R1	1.55	1.80		4.4
H-73-RR	1.60	1.90		4.6
H-74 Plain	.80	.98		3.0
H-74-F4	1.90	2.28		6.0
H-74-G6	2.25	2.50		4.1
H-74-G19	2.00	2.30		4.4
H-74-G20	2.00	2.40		5.3
H-74-H1	1.65	1.96		4.9
H-74-H2	1.65	1.95		4.7
H-74-K1	1.20	1.42		3.5
H-74-M3	2.00	2.30		4.6
H-74-R1/4	1.10	1.32	.08	3.5
H-74-R1	1.05	1.26		3.4
H-74-RR	1.15	1.38		3.8
H-75 Plain	.72	.86		2.2
H-75-F4	1.70	1.95		4.0
H-75-G19	1.65	1.85		3.0
H-75-H1	1.75	2.00		3.9
H-75-H2	1.50	1.78		4.1
H-75-K1	1.20	1.38		2.7
H-75-R1	1.00	1.16		2.4
H-75-RR	1.20	1.38		2.9
H-78 Plain	.95	1.20		4.2
H-78-A1	1.60	1.90		4.8
*H-78-A11	1.70	2.00		4.8
H-78-A22	1.60	1.90		4.8
H-78-F4	$2.25	$2.75		8.1
H-78-G1	2.30	2.65		5.4
H-78-G19	2.50	2.85		5.9
H-78-H1	2.10	2.50		6.8
H-78-H2	2.00	2.40		6.5
H-78-K1	1.60	1.95		5.6
H-78-K2	1.67	2.05		6.0
H-78-M3	2.50	2.85	$0.08	6.0
H-78-R1	1.25	1.55		4.5
H-78-RR	1.35	1.65		5.0
H-78-RR1 1/2	1.50	1.80		5.3
H-78 1/2 Plain	1.20	1.50		5.0
H-79 Plain	1.05	1.32		4.8
H-79-F15	2.25	2.75		8.9
H-79-K-1	1.75	2.15		6.1
H-82 Plain	1.20	1.55		5.5
H-82-F4	2.30	2.85		8.9
H-82-G19	2.70	3.20		7.5
H-82-H2	2.30	2.90		8.9
H-82-K1	1.90	2.30		6.5
H-82-K2	1.95	2.45		7.6
H-82-M3	3.50	4.10	.10	8.5
H-82-R1	1.65	2.05		6.0
H-82-RR	1.70	2.10		6.5
H-82-RR3	2.50	3.00		7.9
H-82-RR3 1/2	2.75	3.35		8.9
H-87 Plain	1.50	1.85		6.5
H-87-F4	2.80	3.35		9.7
H-87-K2	2.60	3.10		8.7
H-95 Plain	1.25	1.55		4.9
H-95-F4	2.50	2.95		7.6
H-95-K2	2.10	2.50	.08	6.6
H-108 Plain	1.50	1.85		5.9
H-108-K2	2.50	2.95		7.7
H-124 Plain	1.75	2.20		8.8
H-124-F4	3.05	3.70		11.8
H-124-H2	4.35	5.20		14.7
H-124-K1	3.90	4.50	.10	11.0
H-124-K2	2.80	3.40		11.3
H-124-RR	2.70	3.20		9.5
H-124-RR3	4.00	4.70		12.8

*H-78-A11 Attachments are furnished in detachable type only, when assembled consecutively.

No. H-82
Pitch—3.075"



Link-Belt "400" Class Pintle Chain

Malleable Iron or PROMAL

Dimensions in Inches; Ultimate Strengths and Average Weights in Pounds

Link-Belt Chain Number	Average Pitch	Approx. Links in 10 Feet	△ Average Ultimate Strength, Mall. Iron	Runs on Sprocket	Overall Width, Detachable A	Overall Width, Riveted B	Diam. of Pin C	Diam. of Barrel D	Max. Allow. Spkt. Face E	Height of Side Bar F	Weight per Foot
434	1.398	86	3,600	34	1¾	1 11/16	1/4	17/32	5/8	11/16	1.0
442	1.375	88	6,000	42	2	1 7/8	5/16	9/16	5/8	3/4	1.4
445	1.630	74	6,000	45	2	1 7/8	5/16	5/8	11/16	3/4	1.5
452	1.506	80	7,000	52	2 3/16	2 1/16	3/8	11/16	5/8	27/32	2.0
455	1.630	74	7,300	45	2 3/16	2 1/16	3/8	5/8	11/16	27/32	1.9
462	1.634	73	9,000	62	2½	2 3/8	7/16	23/32	7/8	15/16	2.5
467	2.308	52	6,000	77	2 3/16	2 1/16	5/16	13/16	3/4	25/32	1.4
477	2.308	52	9,600	77	2 3/8	2¼	7/16	13/16	11/16	1	2.0
483	4.000	30	15,000	83	3 3/8	3 3/16	1/2	15/16	1 1/16	1 7/32	2.9
488	2.609	46	11,000	88	2 7/8	2¾	7/16	7/8	15/16	15/16	2.9
488½	2.609	46	14,000	488½	3 1/16	2 7/8	1/2	7/8	7/8	1¼	4.2
4103	3.075	39	22,000	103	3 7/16	3¼	3/4	1 7/32	1 1/8	1½	5.7
4124	4.063	30	33,000	124	4 19/32	4 11/32	13/16	1 23/32	1¼	1¾	8.5
4200	2.688	45	12,000	4200	3 3/8	3 1/8	1/2	1	1	1 3/16	......
4350	3.500	34	12,000	4350	3 11/32	3 3/32	1/2	15/16	1 1/16	1 7/32	3.3
4455	1.630	74	7,000	55	1 15/16	1 13/16	5/16	11/16	5/8	3/4	2.0

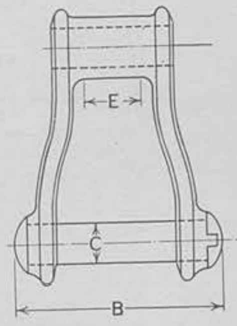
*Attachments only.
△Average Ultimate Strength for PROMAL Chain is approximately 15 to 20% higher than for Malleable Iron.

LINK-BELT "400" Class Pintle Chain is a closed-joint chain of greater strength, designed to operate on the same sprocket wheels as Ewart Link-Belt; and for use where the presence of dirt or grit renders the open hook of Ewart Link-Belt objectionable. It has well-balanced parts, is light in weight, yet strong, and is designed for hard service and long life.

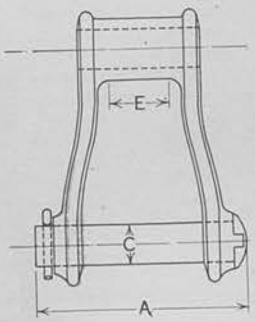
Link-Belt "400" Class Chain is ideal for a wide range of drives, conveyors and elevators; and is the result of years of experience in the design and manufacture of conveying and drive chains.

Link-Belt Chain Number	Malleable Iron Price, per Foot: Riveted	Malleable Iron Price, per Foot: Detachable	PROMAL Price, per Foot: Riveted	PROMAL Price, per Foot: Detachable	Weight, per Foot
434 Plain	$0.60	$0.70	$0.68	$0.78	1.0
442 Plain	.65	.75	.75	.85	1.4
442-K1	1.10	1.20	1.22	1.32	1.9
442-K3½	1.50	1.60	1.70	1.80	3.3
445 Plain	.60	.70	.70	.80	1.5
445-A1	.80	.90	.92	1.02	1.8
445-F2	.90	1.00	1.02	1.12	2.0
445-K1	.90	1.00	1.03	1.13	2.1
445½-K40	1.50	1.60	1.70	1.80	2.7
445½-K45½	1.70	1.80	1.92	2.02	3.1
445½-K91	1.30	1.40	1.47	1.57	2.2
445½-K108	1.30	1.40	1.47	1.57	2.3
445½-K109	1.30	1.40	1.47	1.57	2.2
451-K3½	......	1:70	......	1.92	3.0
452 Plain	.70	.80	.83	.93	2.0
452-A88	......	1.40	......	1.56	2.6
452-CE1	1.30	1.40	1.54	1.64	3.2
452-D5	1.60	1.70	1.82	1.92	3.2
452-E1	1.00	1.10	1.14	1.24	2.3
452-K1	1.00	1.10	1.15	1.25	2.5
455 Plain	.65	.75	.77	.87	1.9
455-A3	......	1.35	......	1.52	2.9
455-A22	1.00	1.10	1.18	1.28	2.3
455-A101	......	1.65	......	1.84	3.3
455-A123	......	1.50	......	1.70	3.4
455-F2	1.00	1.10	1.15	1.25	2.7
455-K1	.95	1.05	1.08	1.18	2.3
455-K90	......	3.60	......	4.05	7.7
459-K98	1.60	1.70	1.80	1.90	2.9
462 Plain	.85	.95	1.00	1.10	2.5
462-F2	1.40	1.50	1.60	1.70	3.5
462-G1	1.50	1.60	1.70	1.80	3.6
462-K1	1.15	1.25	1.36	1.46	3.2
462-K45½	......	2.75	......	3.20	7.8
467 Plain	.60	.68	.70	.78	1.4
467-K1	1.00	1.08	1.15	1.28	2.0
477 Plain	.70	.78	.84	.92	2.0
477-A22	1.00	1.08	1.15	1.23	2.5
477-A53	1.10	1.18	1.32	1.40	3.0
477-A115	1.05	1.13	1.25	1.33	3.0
477-AD2	1.30	1.38	1.55	1.63	3.1
477-AD22	1.20	1.28	1.44	1.52	3.0
477-C49 with Plate	3.20	3.28	3.52	3.60	5.6
477-D5	1.30	1.38	1.50	1.58	3.1
477-E23	1.00	1.08	1.16	1.24	2.9
477-E25	.90	.98	1.05	1.13	2.6
477-F2	1.25	1.33	1.48	1.56	3.7
477-G1	1.30	1.38	1.52	1.60	3.7
477-K1	1.20	1.28	1.38	1.46	2.9
477 Swivel	2.80	2.88	3.20	3.28	3.7

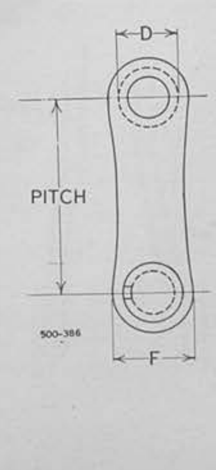
Link-Belt Chain Number	Malleable Iron Price, per Foot: Riveted	Malleable Iron Price, per Foot: Detachable	PROMAL Price, per Foot: Riveted	PROMAL Price, per Foot: Detachable	Weight, per Foot
483	.80	.88	.96	1.04	2.9
483-A22	1.10	1.18	1.32	1.40	3.7
483-D5	1.20	1.28	1.40	1.48	3.5
483-K1	$1.10	$1.18	$1.30	$1.38	3.6
483-M19	1.25	1.33	1.44	1.52	3.4
488 Plain	.80	.88	.96	1.04	2.9
488-A3	1.50	1.58	1.72	1.80	3.9
488-A22	1.15	1.23	1.32	1.40	3.1
488-A42	1.15	1.23	1.35	1.43	3.6
488-F2	1.35	1.43	1.62	1.70	4.5
488-F8	1.50	1.58	1.82	1.90	5.3
488-G1	1.45	1.53	1.76	1.84	4.8
488-G6	1.40	1.48	1.70	1.78	4.8
488-G19	1.55	1.63	1.80	1.88	4.4
488-K1	1.20	1.28	1.44	1.52	3.9
488-K2	1.30	1.38	1.60	1.68	4.6
488-M1	1.50	1.58	1.74	1.82	4.4
488½ Plain	1.20	1.28	1.44	1.52	4.2
488½-A7	1.70	1.78	1.98	2.06	5.1
4100-G51	1.50	1.60	1.74	1.84	3.2
4103 Plain	1.25	1.35	1.52	1.60	5.7
4103-A11	1.80	1.90	2.20	2.30	6.7
4103-A22	1.80	1.90	2.20	2.30	6.7
4103-A42	1.90	2.00	2.16	2.26	6.1
4103-AD2	2.60	2.70	3.15	3.25	8.6
4103-F2	2.00	2.10	2.46	2.56	8.1
4103-F29	2.40	2.50	3.10	3.20	9.6
4103-F30	2.80	2.90	3.60	3.70	9.9
4103-F31	2.30	2.40	2.85	2.95	8.5
4103-G6	2.30	2.40	2.66	2.76	7.6
4103-K1	1.80	1.90	2.20	2.30	6.6
4103-K2	1.90	2.00	2.30	2.40	8.0
4103-M1	1.90	2.00	2.30	2.40	6.9
4124 Plain	1.75	1.85	2.15	2.25	8.5
4124-F2	2.75	2.85	3.35	3.45	10.7
4124-F8	4.20	4.30	5.20	5.30	16.9
4124-K1	2.60	2.70	3.20	3.30	11.1
4124-K2	2.90	3.00	3.60	3.70	11.7
4124-RF2	3.90	4.00	4.90	5.00	16.9
4125-K2½	......	1.30	......	1.47	2.1
4200-A1	......	1.85	......	2.20	5.3
4200-K1	......	2.10	......	2.45	6.2
4203-E45	......	3.00	......	3.60	10.1
4301-E43	......	3.50	......	4.30	10.9
4302-E43	......	3.60	......	4.45	12.8
4350 Plain	.90	.98	1.10	1.18	3.3
4350-M19	1.35	1.43	1.64	1.72	4.3
4455	.72	.82	.85	.95	2.0
4455-C6	......	1.20	......	1.40	3.4



Riveted

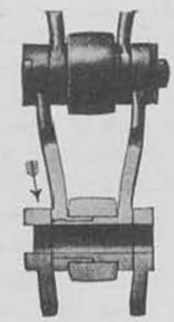


Detachable



Link-Belt "1100" Class Roller Chain

Malleable Iron or PROMAL

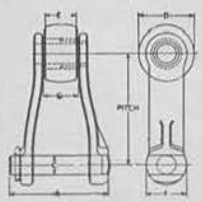


The distinctive feature of the "1100" Class chain is the rigid connection of the two side bars by a telescoping barrel or end bar, making the construction as rigid as though the parts were cast together, and giving a full bearing between the barrel and the roller, and between the barrel and the pin.

As shown in the sectional view, the end bar on one side is shouldered, and telescopes the other. These parts are a forced fit, and are further held rigid by lugs pressed into recesses by a drift forced through the hole. This results in a true smooth hole also. The holes in the other end of the side bars, for holding the pins, are also smoothed and sized by drifting. The pins are a drive fit in these holes, and fit snugly the projections cast on the side bar for holding the T head from rocking or working loose. The chain is tight and rigid throughout, and will give long service.

The pins are of .40 per cent carbon steel, with hot forged T heads, and are rolled true and smooth after forging.

Malleable iron chains and attachments listed in **bold face type** are standard, and are carried in stock. Corresponding sizes of **PROMAL** chain can be shipped within a few days after receipt of order.



Dimensions in Inches; Ultimate Strengths and Average Weights in Pounds

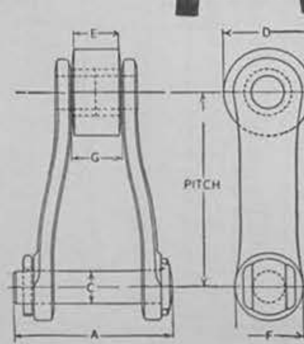
Link-Belt Chain Number	Average Pitch	Approx. Links in 10 Feet	△Average Ultimate Strength, Mall. Iron	Overall Width A	Diameter of Pin C	Diameter of Roller D	Maximum Allowable Sprocket Face E	Height of Side Bar F	Width of Roller G	Weight, per Foot
1112	**3.690**	**32 1/2**	**15,000**	3 1/4	5/8	1 3/4	1	1 1/4	1 1/16	5.3
1113	**4.040**	**30**	**19,000**	3 1/2	11/16	2	1 1/16	1 7/16	1 3/16	6.4
1114	**6.000**	**20**	**19,000**	3 1/2	11/16	2	1 1/16	1 15/32	1 3/16	5.6
1116	**6.000**	**20**	**15,000**	3 3/16	5/8	2	1	1 1/8	1 1/16	4.2
1118	4.040	30	19,000	3 1/2	11/16	2 1/4	1 1/16	1 7/16	1 3/16	7.2
1119	2.970	40	6,500	2 1/4	3/8	1 1/4	3/4	13/16	27/32	2.4
1120	**4.000**	**30**	**6,500**	2 1/4	3/8	1 1/2	3/4	13/16	13/16	2.3
1123	4.040	30	19,000	3 1/2	11/16	1 3/4	1 1/16	1 7/16	1 3/16	6.0
1124	**4.000**	**30**	**12,000**	2 11/16	1/2	1 1/2	15/16	1 1/8	1	3.4
1130	**6.000**	**20**	**25,000**	3 3/4	3/4	2 1/2	1 1/8	1 3/4	1 1/4	7.5
1131	**6.000**	**20**	**34,000**	4 5/8	7/8	3	1 5/16	2	1 15/32	12.0
1132	5.290	22 1/2	35,000	4 1/2	7/8	2 7/8	1 1/8	2	1 7/32	11.7
1133	6.000	20	34,000	4 5/8	7/8	2 1/2	1 5/16	2	1 7/16	10.6
1170	18.000	6 2/3	60,000	4 7/8	1	2 1/4	1 7/8	3	2 1/16	10.8
1183	**3.000**	**40**	**9,500**	2 1/4	3/8	1 1/2	3/4	15/16	13/16	3.2
1194	4.000	30	13,300	3 1/4	5/8	2	1	1 1/8	1 1/16	5.1

△Average Ultimate Strength for PROMAL Chain is approximately 15 to 20% higher than for Malleable Iron.

Link-Belt "MR" Class Roller Chain

Malleable Iron or PROMAL

"MR" Class Chain is similar in construction to the "1100" Class, except that it is made with abutting instead of telescoping end bars. We offer a large line of attachments for industrial conveyor and elevator service. Chain is usually furnished in detachable type, having pins with cotters. Riveted type chain can be furnished if desired.



Dimensions in Inches; Ultimate Strengths and Average Weights in Pounds

Link-Belt Chain Number	Average Pitch	Approx. Links in 10 Feet	△Average Ultimate Strength, Mall. Iron	Overall Width Detachable A	Overall Width Riveted B	Diam. of Pin C	Diam. of Roller D	Max. Allow. Spkt. Face E	Height of SideBar F	Width of Roller G	Weight, per Foot
MR-1	2.970	40	15,000	3 3/16	3	5/8	1 7/16	15/16	1 9/32	1 1/32	5.3
MR-1 1/2	**2.970**	**40**	**18,000**	3 3/4	3 5/8	5/8	1 9/16	15/16	1 9/32	1 1/32	5.7
MR-2	3.690	32 1/2	15,000	3 3/16	3	5/8	1 13/32	1	1 1/4	1 1/16	4.5
MR-2Sp.	**3.690**	**32 1/2**	**15,000**	3 3/16	3	5/8	1 3/4	1	1 1/4	1 1/16	5.2
MR-3	4.040	30	19,000	3 9/16	3 3/8	11/16	1 3/4	1 3/16	1 1/2	1 3/16	6.4
MR-9	**2.980**	**40**	**6,000**	1 15/16	1 13/16	3/8	1	23/32	13/16	3/4	1.6
MR-9 1/2	2.980	40	6,000	1 15/16	1 13/16	3/8	1 1/2	23/32	13/16	3/4	2.4
***MR-11 1/2**	**2.970**	**40**	**18,000**	3 7/32	3 3/32	5/8	1 9/16	15/16	1 9/32	1 1/32	8.8
MR-14	**4.000**	**30**	**11,000**	2 11/16	2 5/8	1/2	1 7/16	15/16	1 3/16	1	3.3
MR-14 1/2	**4.000**	**30**	**11,000**	2 11/16	2 5/8	1/2	2	15/16	1 3/16	1	4.5
MR-17	2.580	46 1/2	10,000	2 3/16	2 1/8	7/16	1 3/16	11/16	1	3/4	2.6
MR-18	3.020	40	10,500	2 7/16	2 5/16	1/2	1 9/32	5/8	1 3/32	21/32	3.3
MR-40 1/2	4.000	30	6,000	2 1/16	1 15/16	3/8	2	11/16	1	3/4	3.0
MR-124	4.060	30	22,000	3 7/8	3 3/4	3/4	1 3/4	1 5/16	1 9/16	1 5/16	7.1
MR-126	**6.000**	**20**	**19,000**	3 1/2	3 1/4	11/16	2 1/4	1 3/32	1 3/8	1 3/16	5.6
MR-126C	**6.000**	**20**	**19,000**	3 1/2	3 1/4	11/16	3	1 3/32	1 3/8	1 3/16	6.5
MR-156C	**6.000**	**20**	**34,000**	4 1/8	4	7/8	3	1 1/8	2	1 3/16	10.8
MR-170	1.656	72	5,000	2 1/4	2 1/8	5/16	7/8	3/4	15/16	9/16	2.1
MR-181	**2.232**	**54**	**6,000**	2 5/16	2 3/16	3/8	1 1/2	9/16	1	7/8	3.5
MR-188	**4.000**	**30**	**11,000**	2 5/8	2 1/2	1/2	1 3/4	15/16	1 3/16	1	4.0
MR-245	5.330	22 1/2	35,000	4 5/16	3 15/16	7/8	2 7/8	1 3/16	2 1/8	1 5/16	12.1
†MR-261	5.330	22 1/2	60,000	4 1/2	......	1 1/8	3 1/8	1 3/16	2 3/4	1 3/16	18.8
‡MR-539	6.000	20	36,000	4 3/8	......	3/4	3	1 5/8	2 1/4	1 5/8	13.5
MR-904	4.000	30	19,000	3 9/16	3 7/16	11/16	2	1 1/16	1 1/2	1 3/16	7.0
MR-1113	**4.040**	**30**	**19,000**	3 9/16	3 7/16	11/16	2	1 1/16	1 7/16	1 3/16	7.3

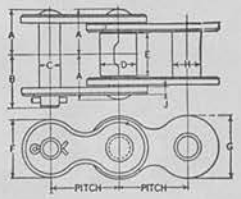
*Attachment only. △Average Ultimate Strength for PROMAL Chain is approximately 15% to 20% higher than for Malleable Iron. †MR-261 has bronze bushings. ‡MR-539 has case-hardened steel bushings.

Link-Belt Silverlink Roller Chains

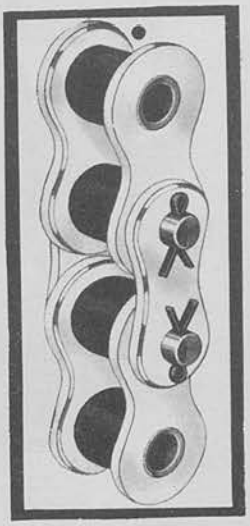
CANADIAN

Link-Belt Silverlink Roller Chain is of accurately-finished all-steel construction, designed to carry heavy loads at moderate speeds, with high efficiency, and has been found very durable and satisfactory on second-reduction drives and similar applications. It is often used for intermediate, built-in drives; for coordinating the motion of widely separated shafts within a machine; and where accurate timing is desirable.

Silverlink Roller Chain is made in 3/8", 1/2", 5/8", 3/4", 1", 1 1/4", 1 1/2", 1 3/4", 2" and 2 1/2" pitches; and where greater strength is required, can be furnished in multiple widths made up as unit strands, known as Double, Triple, Quadruple, etc. It is made for any horse power requirement, and complete drives (chain and cut-tooth wheels) in sizes up to 90 H.P., and speed ratios of 1 to 1 up to 8 to 1, are obtainable from stock.



SINGLE WIDTH

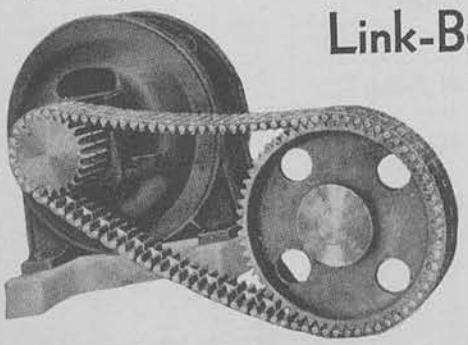


List Prices, Dimensions in Inches, Average Weights, and Ultimate Strengths in Pounds

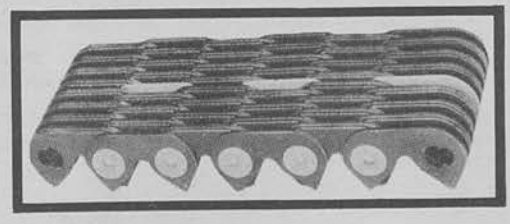
Link-Belt Chain Number	Pitch	LIST PRICES Plain Chain per Foot		LIST PRICES Parts			Average Ultimate Strength, Pounds (Actual Tests)	Wt., per Foot	A	B	Pin Diam. C	Roller		F	G	Bush Diam. H	J
		Cotter Type	Riveted Type	Connecting and Coupler Links, ea.	Roller Links, each	Offset Links, each						Diam. D	Width E				
MANUFACTURERS' (A. S. A.) STANDARD SIZES																	
⊗‡RC-35	3/8	.....	$0.50	$0.08	$0.08	Ø$0.18	2,100	.2	.231	.283	.141	.200	3/16	.286	.344	.200	.050
‡RC-40	1/2	.....	.70	.08	.08	.22	3,700	.41	.314	.357	.156	.312	5/16	.386	.451	.220	.060
‡RC-41	1/2	.....	.36	.04	.04	Ø .16	2,000	.277	.268	.310	.141	.306	1/4	.310	.383	.200	.050
‡RC-50	5/8	.....	.74	.08	.10	.22	6,100	.64	.398	.434	.200	.400	3/8	.475	.545	.277	.080
RC-60	3/4	$1.00	.90	.10	.10	.32	8,500	1.0	.489	.574	.234	15/32	1/2	.600	.710	.345	.094
RC-80	1	1.70	1.60	.16	.20	.52	14,500	1.68	.615	.741	.312	5/8	5/8	.750	.906	.442	.125
*RC-100	1 1/4	2.00	2.00	.22	.30	.68	24,000	2.56	.754	.882	.375	3/4	3/4	31/32	1 1/8	.546	.156
*RC-120	1 1/2	2.60	2.60	.34	.50	.80	34,000	3.73	.940	1.116	.4375	7/8	1	1 1/8	1 3/8	.656	.187
*RC-140	1 3/4	3.00	3.00	.48	.60	.90	46,000	4.65	1.022	1.210	.500	1	1	1 5/16	1 9/16	.718	.218
*RC-160	2	3.60	3.60	.60	.90	1.00	58,000	6.32	1.228	1.383	.562	1 1/8	1 1/4	1 9/16	1 15/16	.812	.250
△*RC-200	2 1/2	7.70	7.70	1.80	2.30	3.20	95,000	11.0	1.546	1.827	.781	1 9/16	1 1/2	1 15/16	2 5/16	1.120	.312

‡Riveted type only. ⊗Rollerless. △Made only with solid roller.

Link-Belt Silent Chain Drives



Flexible as a Belt—
Positive as a Gear—
More Efficient than Either



Link-Belt Silverstreak Silent Chain is made in various sizes to transmit power up to 1000-H.P. and over; and thousands of successful installations, many of them operating efficiently for 10, 20 and even 30 years, testify to its unrivaled performance.

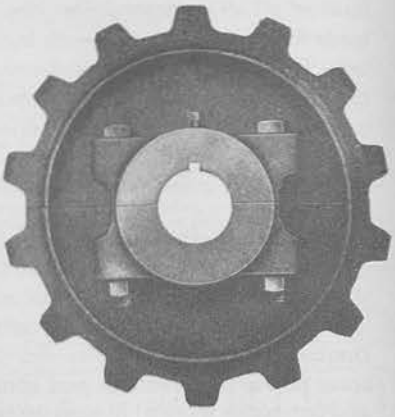
Silent chain truly is as flexible as a belt of either flat or V-type—positive as a gear—and more efficient than either; in fact, it is practically a flexible gear. It transmits the full R.P.M. and power of the prime mover. There is no slippage as with belts, to rob the machine of its maximum production or quality of product—no loss of production as when renewing "endless" belts or ropes.

Silent chain, although flexible physically, is absolutely positive in action; and as it is so low in first cost, so efficient in performance, so low in upkeep, so flexible in its application to short or long centers, and so durable that it performs at its high initial efficiency for decades, it is not difficult to understand why silent chain is industry's outstanding driving medium today, even as it was years ago.

Link-Belt Sprocket Wheels

Solid Plate Center Wheel

Solid Arm Type Wheel



Split Plate Center Wheel

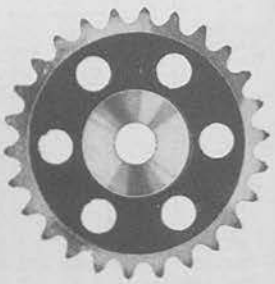
Each Link-Belt Sprocket wheel is carefully fitted to a chain of standard pitch before shipping.

A good chain drive should "run" and should "last". Chains will frequently "run" on sprocket wheels which do not fit them.

To insure durability and maximum service of both chain and wheel, they must fit.

The Chain is the Standard, and the sprocket wheel must be made to fit it.

When you buy sprocket wheels, insist that they fit a chain of standard pitch. Then the Drive will "last" as well as "run".



Cut Tooth Wheel for Link-Belt Silverlink Roller Chain

The in-built strength, accuracy and durability of Link-Belt Sprocket wheels, are the outgrowth of an experience of over 50 years, during which time these superior features have been developed:

Metal mixtures particularly suitable for sprocket wheels.

Detail designs and proportions for teeth, rims, arms and hubs, which assure sound castings, and ample strength.

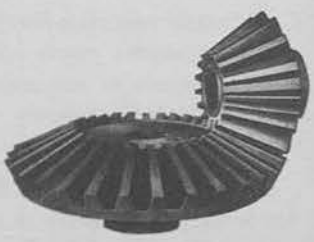
Manufacturing processes which furnish close-grained, smooth bearing surfaces to engage the chain.

Systems of inspection, and of fitting wheels to standard chain, which assure smoothness of operation, and long life for both the wheels and the chain.

Cast Tooth Gears

Spur Gears.

Miter Gears

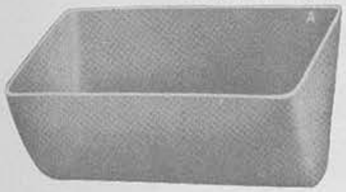


Bevel gears

Prices and further information upon application.

LINK-BELT Malleable Iron and Promal Elevator Buckets

STYLE "A" BUCKET



The Style "A" Bucket, furnished either in Malleable Iron or Promal, is commonly used for elevators handling cement, chemicals, coal, grain, sand, gravel, stone, pulp, phosphate, ear corn, etc.

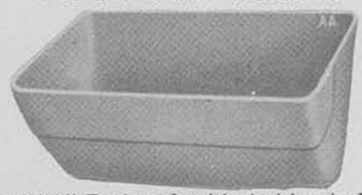
Buckets listed in **bold face type** are carried in stock in Malleable Iron; and can be furnished in Promal within a few days after receipt of order.

List Prices, Dimensions in Inches, and Average Weights in Pounds

Length	Width	Depth	*Capacity, Cubic Feet	Weight, each	Price, each: Malleable Iron	Price, each: PROMAL
4	**2¾**	**3**	**.01**	**1.0**	**$0.31**	$0.40
5	**3½**	**3¾**	**.02**	**1.5**	**.50**	.65
6	**4**	**4¼**	**.03**	**2.3**	**.64**	.85
7	**4½**	**5**	**.05**	**3.1**	**.76**	1.05
8	**5**	**5½**	**.07**	**4.2**	**.90**	1.30
9	6	6¼	.11	5.9	1.30	1.85
10	**6**	**6¼**	**.12**	**6.8**	**1.45**	2.00
11	6	6¼	.13	7.4	1.55	2.25
12	**6**	**6¼**	**.14**	**7.9**	**1.65**	2.40
12	**7**	**7¼**	**.19**	**10.5**	**1.90**	2.75
14	**7**	**7¼**	**.23**	**12.1**	**2.20**	3.25
15	7	7¼	.25	12.4	2.35	3.50
16	**7**	**7¼**	**.27**	**14.0**	**2.60**	3.90
14	**8**	**8½**	**.30**	**16.7**	**3.00**	4.50
16	**8**	**8½**	**.34**	**18.9**	**3.40**	5.00
18	**8**	**8½**	**.39**	**21.1**	**3.75**	5.50
20	8	8½	.43	23.3	4.30	6.25
24	8	8½	.51	27.5	5.40	7.80
18	**10**	**10½**	**.61**	**33.0**	**5.85**	8.60

*Capacities given are for buckets filled to the line X—X. Actual capacity will depend on angle of repose of material handled and inclination of elevator.

STYLE "AA" BUCKET



The Style "AA" Bucket, furnished either in Malleable Iron or Promal, is similar to the Style "A", but is cast with a thick, wide reinforcing lip along the front edge and around the front corners, which gives the bucket greater resistance to distortion, and prolongs its life in scooping up heavy or gritty material.

Buckets listed in **bold face type** are carried in stock in Malleable Iron; and can be furnished in Promal within a few days after receipt of order.

List Prices, Dimensions in Inches, and Average Weights in Pounds

Length	Width	Depth	*Capacity, Cubic Feet	Weight, each	Price, each: Malleable Iron	Price, each: PROMAL
6	**4**	**4½**	**.03**	**2.7**	**$0.70**	$0.95
8	**5**	**5½**	**.07**	**4.4**	**1.00**	1.40
10	**6**	**6¼**	**.12**	**7.1**	**1.50**	2.15
11	6	6¼	.13	7.6	1.65	2.35
12	**6**	**6¼**	**.14**	**8.4**	**1.80**	2.60
12	**7**	**7¼**	**.19**	**10.9**	**2.10**	3.10
14	**7**	**7¼**	**.23**	**13.9**	**2.45**	3.70
15	7	7¼	.25	14.2	2.60	3.90
16	**7**	**7¼**	**.27**	**15.9**	**2.85**	4.30
14	8	8½	.30	17.5	3.30	5.00
16	8	8½	.34	20.8	3.75	5.40
18	**8**	**8½**	**.39**	**23.0**	**4.10**	6.00
20	8	8½	.43	28.4	4.50	6.80
24	8	8½	.51	30.5	6.15	8.80

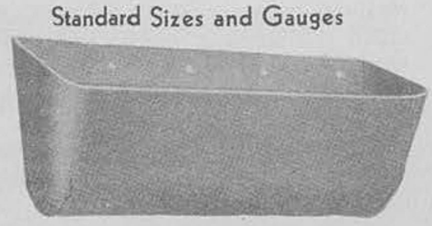
*Capacities given are for buckets filled to the line X—X. Actual capacity will depend on angle of repose of material handled and inclination of elevator

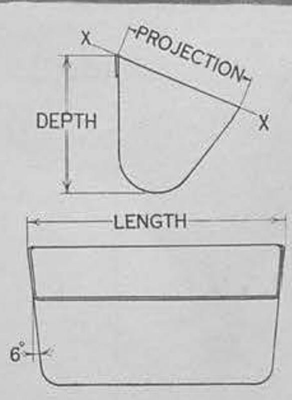
Salem Steel Elevator Buckets

List Prices, Dimensions in Inches, and Average Weights in Pounds

Length	†Projection	*Capacity Cubic Feet	Standard Weight: Gauge Number	Standard Weight: Price each	Standard Weight: Weight, each	No. 18 Gauge: Price, each	No. 18 Gauge: Weight, each	No. 16 Gauge: Price, each	No. 16 Gauge: Weight, each	No. 14 Gauge: Price, each	No. 14 Gauge: Weight, each
2½	2½	.005	24	$0.15	.19	$0.25	.40	......	......	......	......
3	2½	.006	24	.15	.25	.25	.50	......	......	......	......
3½	2½	.007	24	.15	.30	.25	.58	......	......	......	......
3	3	.008	22	.15	.35	.25	.60	$0.35	.72	......	......
3½	3	.010	22	.15	.37	.25	.68	.35	.84	......	......
4	3	.011	22	.15	.40	.25	.70	.35	.88	......	......
4½	3	.013	22	.15	.45	.25	.78	.35	.94	......	......
4	3½	.016	22	.15	.48	.25	.80	.35	.96	$0.42	1.2
4½	3½	017	22	.15	.60	.25	.90	.35	1.18	.42	1.5
5	3½	.018	22	.17	.70	.27	1.00	.38	1.20	.45	1.7
5	4	.026	20	.19	.72	.30	1.20	.42	1.44	.50	1.82
5½	4	.028	20	.22	.76	.33	1.30	.46	1.56	.54	1.95
6	4	.031	20	.25	1.06	.37	1.40	.50	1.68	.59	2.10
7	4½	.042	20	.30	1.50	.43	1.60	.56	1.92	.65	2.40
8	5	.059	19	.35	1.65	......	......	.60	2.00	.70	2.25
9	5	.067	19	.40	1.95	......	......	.65	2.20	.77	2.75
10	5	.075	19	.45	2.03	......	......	.70	2.60	.84	3.25
10	5½	.101	19	.48	2.30	......	......	.73	2.80	.87	3.50
9	6	.098	18	.50	2.00	......	......	.70	2.40	.86	3.00
10	6	.108	18	.56	2.60	......	......	.77	3.00	.95	3.90
11	6	.119	18	.62	2.80	......	......	.88	3.40	1.08	4.00
12	6	.130	18	.69	3.00	......	......	.92	3.60	1.14	4.50
13	6	.141	18	.76	3.30	......	......	.99	3.80	1.22	4.75
14	6	.152	18	.83	3.60	......	......	1.06	4.00	1.30	4.90
15	6	.162	18	.90	3.80	......	......	1.14	4.25	1.39	5.31
16	6	.174	18	.97	3.90	......	......	1.22	4.50	1.48	5.63
18	6	.196	18	1.11	4.20	......	......	1.41	4.90	1.69	6.12
20	6	.218	18	1.25	4.60	......	......	1.60	5.40	1.80	6.76
10	7	.151	18	.70	2.90	......	......	.92	3.60	1.17	4.50
11	7	.168	18	.77	3.10	......	......	1.01	3.80	1.28	4.75
12	7	.183	18	.85	3.60	......	......	1.11	4.50	1.40	5.63
13	7	.200	18	.93	3.80	......	......	1.20	4.75	1.50	5.94
14	7	.216	18	1.00	4.00	......	......	1.28	5.00	1.60	6.00
15	7	.232	18	1.08	4.20	......	......	1.36	5.20	1.70	6.30
16	7	.249	18	1.15	4.40	......	......	1.45	5.40	1.80	6.75
18	7	.272	18	1.30	4.90	......	......	1.62	5.80	2.00	7.25
20	7	.307	18	1.45	5.00	......	......	1.80	6.40	2.20	8.00
12	8	.214	18	1.05	3.80	......	......	1.35	5.00	1.75	6.25
14	8	.254	18	1.20	4.30	......	......	1.50	5.30	1.90	6.70
16	8	.292	18	1.35	4.80	......	......	1.65	5.70	2.05	7.12
18	8	.332	18	1.50	5.10	......	......	1.80	6.00	2.20	7.50
20	8	.370	18	1.66	5.90	......	......	2.00	6.90	2.40	8.60
22	8	.410	18	1.83	6.50	......	......	2.20	7.50	2.65	9.37
24	8	.450	18	2.00	6.80	......	......	2.40	8.10	2.90	10.13

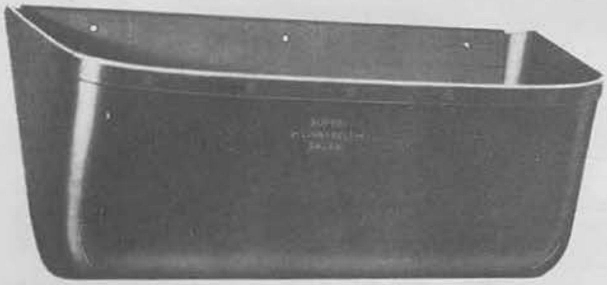
Standard Sizes and Gauges

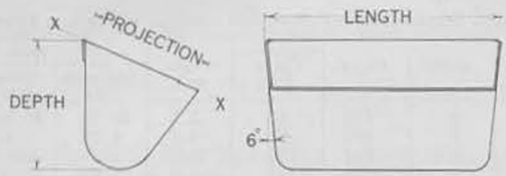




Super Salem Steel Elevator Buckets

Standard Sizes and Gauges





● Link-Belt Super Salem steel elevator buckets are reinforced at the digging lip, front corners and along back. They are very strong, and offer super-resistance to abrasive wear and distortion. This added durability is obtained without increase in bucket weight.

The reinforcing lip is an integral part of the metal body, folded over and spot-welded to the body. It is not a separate band.

The back reinforcing plate also is spot-welded to the metal body. As no rivets are used, there are no projections to wear away in service; to interfere with chain attachments; or to damage the elevator belt. The entire back of reinforcing plate presents a flat, smooth surface and makes unnecessary the use of washers to compensate irregularities.

The construction of the new bucket assures smooth pick-up in the boot and free discharge of material at head of elevator.

Super Salem buckets, made in 2½" x 2½" to 30" x 8" sizes, in No. 24 to No. 18 gauge steel, are comparable to "heavy" construction of the conventional standard Salem design.

List Prices, Dimensions in Inches, and Average Weights in Pounds

Length	†Projection	*Capacity Cubic Feet	Standard Weight		
			Gauge No.	Price, each	Weight, each
2½	2½	.005	24	$0.15	.19
3	2½	.006	24	.15	.25
3½	2½	.007	24	.15	.30
3	3	.008	22	.15	.35
3½	3	.010	22	.15	.37
4	3	.011	22	.15	.40
4½	3	.013	22	.15	.45
4	3½	.016	22	.15	.48
4½	3½	.017	22	.15	.60
5	3½	.018	22	.17	.70
5	4	.026	20	.19	.72
5½	4	.028	20	.22	.76
6	4	.031	20	.25	1.06
7	4½	.042	20	.30	1.50
8	5	.059	19	.35	1.65
9	5	.067	19	.40	1.95
10	5	.075	19	.45	2.03
10	5½	.101	19	.48	2.30
9	6	.098	18	.50	2.00
10	6	.108	18	.56	2.60
11	6	.119	18	.62	2.80
12	6	.130	18	.69	3.00
13	6	.141	18	.76	3.30
14	6	.152	18	.83	3.60
15	6	.162	18	$0.90	3.80
16	6	.174	18	.97	3.90
18	6	.196	18	1.11	4.20
20	6	.218	18	1.25	4.60
10	7	.151	18	.70	2.90
11	7	.168	18	.77	3.10
12	7	.183	18	.85	3.60
13	7	.200	18	.93	3.80
14	7	.216	18	1.00	4.00
15	7	.232	18	1.08	4.20
16	7	.249	18	1.15	4.40
18	7	.272	18	1.30	4.90
20	7	.307	18	1.45	5.00
12	8	.214	18	1.05	3.80
14	8	.254	18	1.20	4.30
16	8	.292	18	1.35	4.80
18	8	.332	18	1.50	5.10
20	8	.370	18	1.66	5.90
22	8	.410	18	1.83	6.50
24	8	.450	18	2.00	6.80

Link-Belt >HEX-TOP< Grease Cups

BASE

1—Strong, durable malleable iron.
2—Entire cup will outlast the bearing it greases.
3—Also furnished with stem and set screw, for grease pipe extensions.

Threaded Stem

CAP

1—Thick wall of tough, durable, malleable iron; keeps its shape; permits deep threads.
2—Threads are machine-cut, smooth and even—not rolled.
3—No sticking.
4—Turns freely.
5—Threads run to top of cap.
6—Cap will not shake loose, from vibration.

>HEX-TOP<

1—Best hand grip made.
2—Just right for monkey wrench.
3—Ideal for cramped places.
4—Neat appearance.
5—Withstands abuse.
6—Safety first. The >HEX-TOP< insures a secure hold; hand or wrench will not slip off.

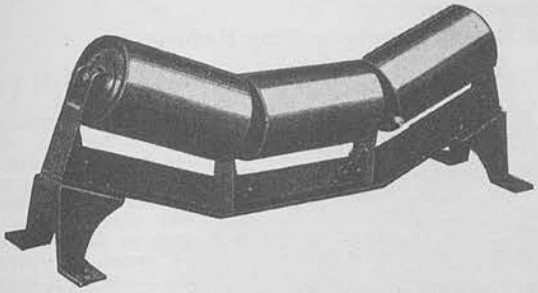
List Prices, Capacities, Dimensions in Inches, and Average Weights in Pounds

No.	Capacity, Ounces	Pipe Thread Stem	A	B	C	Wt., each	Price, each	*Price, each, with Fitting
1	¾	¼	1 11/16	2⅝	1¾	.5	$0.45	$0.75
2	2	⅜	2⅜	3	2 7/16	.7	.55	.85
3	4	⅜	2 9/16	3¾	2 9/16	1.2	.65	.95
4	6½	½	3⅛	4¾	3 5/16	1.9	.90	1.20
44	11	½	3⅛	5 5/16	3 7/16	2.3	1.75	2.05

No.	Capacity, Ounces	Opening in Stem	A	B	C	Wt., each	Price, each	*Price, each, with Fitting
30	4	⅝	2 11/16	3¾	2⅝	1.4	$0.70	$1.00
040	4	1	3¼	2¾	3 5/16	1.5	.90	1.20
430	6½	9/16	3⅛	4¾	3 7/16	1.9	1.05	1.35
40	6½	1¼	3⅛	4⅞	3½	2.3	1.05	1.35

Link-Belt Troughing Idlers

Type 40 Anti-Friction Belt Conveyor Idlers

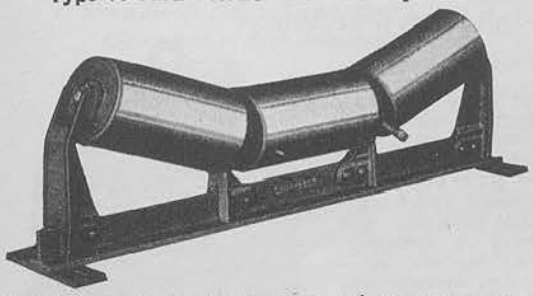


Used in practically every field of industry, under a variety of operating conditions, giving long, reliable service and power economy. Recommended for general belt conveyor service not requiring the use of Type 59 heavy duty troughing idlers.

The inverted tee-iron base conforms to the angle of troughing rolls, with end stands for bolting to support frame-work, and provides a rugged, rigid construction which does not permit material to accumulate and interfere with the rolls. Has anti-friction roller bearings.

The Type 41 return idlers are used with Type 40 troughing idlers, the return rolls being furnished in either 6 or 5-inch diameter.

Type 70 Anti-Friction Belt Conveyor Idlers



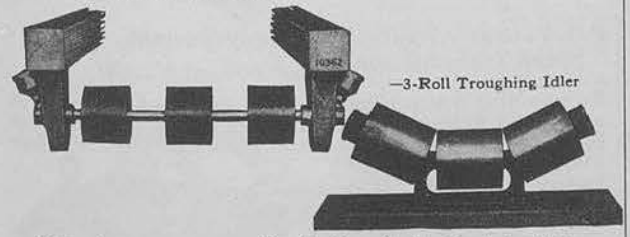
Suitable where the conditions of service are not so severe as to necessitate the use of Type 40 idlers.

Has a straight inverted tee-iron base, to which are attached sturdy up-standing malleable iron brackets, supporting the rolls, which are equipped with anti-friction roller bearings. Flat steel feet, providing means for bolting idler to supporting framework, are welded to ends of tee-iron base. Has 5-inch diameter troughing rolls.

The Type 71 return idlers are used with Type 70 troughing idlers, the return rolls being furnished in either 5 or 4-inch diameter.

Type 28 3-Roll Multiroll Idlers

Type 17 Return Idler



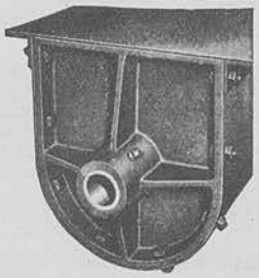
This form is called 3-roll, whether the horizontal roll is made with one pulley or two.

Plank supports for troughing idler are standard equipment. Complete with idler mounted on plank, but no end holes or bolts for attaching to stringers. Channel supports have end holes for ½-inch bolts drilled at factory, but bolts are not included.

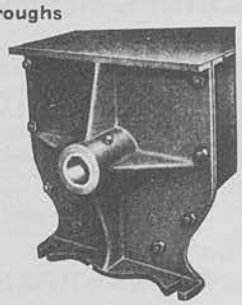
Uses Type 17 return idler which is carried by hanger and comes complete with parts in each case, ready to attach under general structure, but not the bolts for attaching.

Link-Belt Conveyor Trough Ends

For Steel Troughs

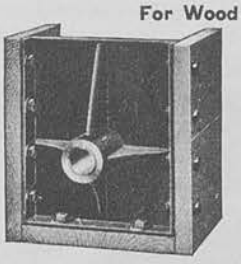


No. 19930
Inside Pattern
for Standard U-Trough

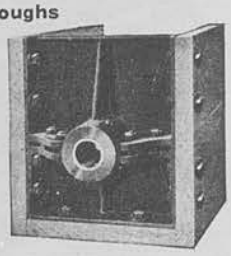


No. 19960
Outside Pattern with Feet
Shown Bolted to Standard
Flange without Feet

For Wood Troughs



No. 11223
Inside Pattern
For Standard Wood Trough

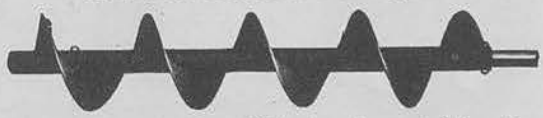


No. 12173
Split Inside Pattern

Plain babbitted, grease lubricated bearings are standard on all trough ends, unless otherwise specified, Grease cups, pipes or fittings are not included in prices.

The split inside pattern end permits removing of conveyor shaft by lifting top half of trough end.

Caldwell Helicoid Conveyors



Made in special rolling mill by forming a steel bar into a helix of the desired diameter, pitch and thickness, to fit a given size of pipe or shaft. It is secured to the shaft by forged steel lugs, securely fastened to the shaft, and riveted to the back face of the flights.

To reinforce the ends, and to provide a large bearing area for coupling bolts, pipe is shrunk onto internal collars. Thus, while the pipe is larger than that used for corresponding sectional flight conveyor, the collars adapt the Helicoid conveyor to same size couplings and shafts. They are therefore interchangeable, size for size with the corresponding sizes of sectional flight conveyors.

No. 11874A Link-Belt Steel U-Troughs

Standard sizes from 6 to 16-inch inclusive assembled with malleable iron flanges, welded to trough sheets. Flanges are practically unbreakable. Furnished with or without feet. Welded joint is dust-tight and secure. Flanges squared up in special fixtures while welding to assure correct matching of end flange bolt holes and proper alignment of assembled trough.

Link-Belt Positive Drives AND REDUCTION UNITS

For Better Power Transmissson Service

Link-Belt Positive Drives

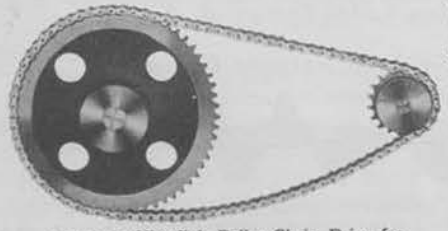
Wherever shafts turn—there opportunity will be found for the money-saving use of Link-Belt Positive Drives, of which we make a type for every service. Each transmits all the power—without slip. Each is reliable, and will render long, trouble-free service. To decide upon which is the right type to use for a specific service, consult a Link-Belt positive drive specialist. He will be glad to give you his unbiased recommendations, backed by many years' experience in applying all types.

Link-Belt Silverstreak Silent Chain Drive

Link-Belt Silverstreak Silent Chain Drive for high speed power transmission.

Positive power transmission; low first cost; long life; practically no upkeep expense; ability to operate equally well on short or long centers; smoothness of operation — are among the qualities that have made Link-Belt Silverstreak Silent Chain so popular throughout the industries, for transmitting the full power of the prime mover. Drives have operated 30 years and over, with practically no attention.

Link-Belt Silverlink Roller Chain Drive

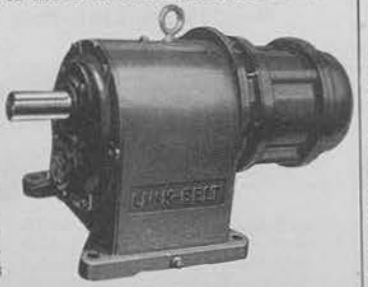


Link-Belt Silverlink Roller Chain Drive for moderately high speed power transmission, light or heavy duty.

For carrying heavy loads at moderate speeds, with high efficiency, as on second reduction drives; for intermediate, built-in drives; for coordinating motion of widely separated shafts within a machine; for use where accurate timing is desirable; for the severe jerky, racking strains of truck, tractor and road building machinery service—for all these the Link-Belt Silverlink Roller Chain Drive is ideally suited.

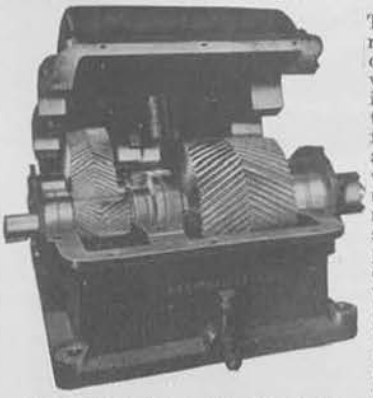
LINK-BELT MOTORIZED REDUCER

Space is saved, and motor shaft alignment troubles are avoided through the use of the Link-Belt Motorized Reducer. It is a very compact, efficient, rigid, quiet, helical-gear, fully-enclosed, automatically-lubricated, anti-friction speed-reduction unit combining reducer and motor. As motor shaft extends through reducer, and as motor frame is secured to side of reducer housing, no motor base plate or motor shaft coupling is required.



Link-Belt Motorized Reducer — a compact, simple, and efficient combination of a standard high grade motor and a well designed reducing unit. Made in various reductions, in a wide range of ratios and horse powers.

Link-Belt Herringbone Gear Reducer

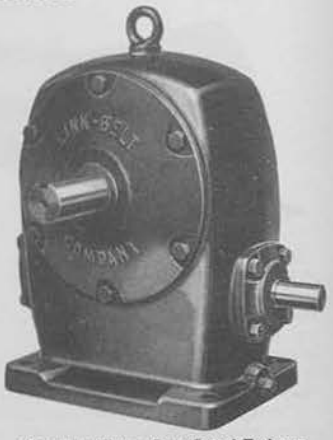


Link-Belt Herringbone Gear Speed Reducer for transmitting power from a separate motor. Large reductions. Withstands severe shock.

The Link-Belt Herringbone-Gear Reducer is especially well suited for making large speed reductions in limited space; for sustaining heavy and shock loads, as well as for stepping-up speed, i.e. driving machines at a higher speed than that of prime mover. It is an efficient, self-contained fully-enclosed, automatically-lubricated unit employing anti-friction bearings and continuous-tooth herringbone gears, possessing great strength.

Link-Belt Worm Gear Reducer

Where large ratios, flexibility of driving arrangement, and a dependable, efficient, enclosed drive of the right-angle type are wanted, Link-Belt has available a complete line of modern, anti-friction, streamlined, automatically-lubricated, worm gear speed reducers of compact, accessible construction. These can be furnished in a wide range of ratios and capacities, with single or double reduction, and in horizontal and vertical shaft types.



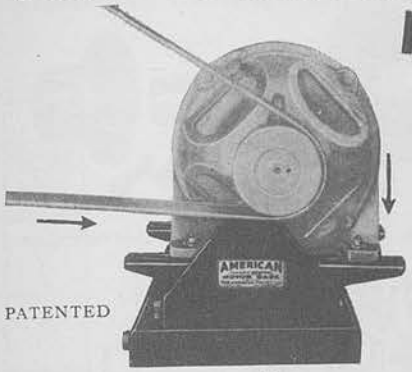
Link-Belt Worm Gear Speed Reducer —a right angle drive unit for general industrial transmissions.

P. I. V. Gear (Positive, Infinitely Variable Speed Transmission)

By providing positive infinitely variable speed control with micrometer precision, while machines are in operation, the Link-Belt all-metal, automatically-lubricated, P.I.V. Gear banishes waste and production difficulties. It ends fluctuations and loss of power through slippage, as the power is transmitted from input to output shaft, through a positive chain drive of unique design, without steps or dependence upon friction.

Link-Belt P.I.V. Gear—a Positive, Infinitely Variable Speed Transmission.

THE "AMERICAN" TENSION CONTROL MOTOR BASE



PATENTED

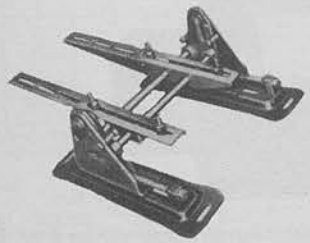
Literally it would be impossible by any manual operation to control belt tension as accurately as does the Tension Control Motor Base. It simply utilizes a force known as reaction torque which is inherent in every electrical motor and which tends to make the frame of the motor turn in a direction opposite to the rotation of the motor pulley. In any electric motor this force operates as naturally and surely as your pulse rate increases during strenuous exercise.

The force of this torque varies as the load on the motor is varied and in exact ratio to the horsepower delivered. Therefore, by placing the motor in a cradle that is free to move through a limited arc, this force is harnessed to serve a useful purpose. Note that the motor is almost in balance over the pivot point of the cradle, so the effects of gravity are minimized and at "no load" the drive operates with relatively low belt tension. But as the load is increased torque asserts itself, swinging the motor away from the driven pulley, so that the belt is tightened and the correct tension for the heavy load is automatically provided. As the load is reduced, the motor returns to the proper position to provide correct belt tension.

There is no more efficient and economical short center drive. In countless demonstrations this base has reduced average belt tensions and bearing pressures by 50%, permitting the three important economies shown below.

Standard "A" Type Base
(Sizes A00 to A10 Inclusive)

Typical of "A" Type "Down Drive" Base



Duplex "D" Type Base
(Sizes D2 to D14 Inclusive)

Duplex "D" Type Base
(Sizes D15 to D18 Inclusive)

SELECTION TABLE AND LIST PRICES

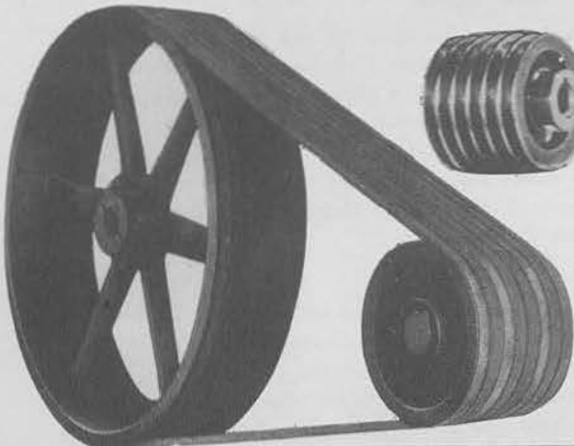
SYMBOL No.	H.P. of Motor, Based on N.E.M.A. Frame Sizes					Maximum Motor Weight Recommended		CANADIAN LIST PRICE	
	1800	1200	900	720	600	Floor	Wall and Ceiling	Standard Base	Down Drive Base
A-00	¼ to ½	⅛ to ¼				50	50	$10.25	P.O.A.
A- 0	1 to 2	¾ to 1	½			200	150	33.30	"
A- 2 D- 2	3 to 5	3	1½ to 2			300	250	46.30	"
A- 4 D- 4	7½ to 10	5 to 7½	3 to 5			500	400	60.80	"
A- 6 D- 6	15 to 25	10 to 15	7½ to 15			700	600	81.00	"
A- 8 D- 8	30 to 40	20 to 30	20 to 25			1000	700	104.20	"
A-10 D-10	50 to 60	40 to 50	30 to 40			1500	1000	136.00	"
D-12	75	60	50	40	30	2500	1500	200.00	"

Above prices subject to discount are F.O.B. Philadelphia. Freight allowed on actual weight of shipment at LCL rate.

D-14	100	75	60-75	50-60	40-50	3000	P.O.A.
D-15			100 to 125	75 to 100	60-75	4200	"
D-16			150 to 200	125 to 150	100 to 125	5400	"
D-18			250	200	150	7200	"

Above prices subject to discount are F.O.B. Philadelphia. No freight allowed.

V-BELT DRIVES AND SHEAVES



"RED LABEL" V-BELT SHEAVES AND DRIVES

"Red Label" V-belt sheaves and drives can be furnished from stocks carried by Link-Belt in Toronto and Montreal. Better grooving, better balance, better bushings combine to make "Red Label" V-belt sheaves outstanding in their field. A 16-page illustrated list price Book 1598 covers both the sheaves and belts, also gives engineering data.

Atlas Style Universal Joints

These joints are a most excellent design, are very carefully and accurately made so that they will run true and are a superior article in every way.

All parts subjected to wear have been carefully heat treated. All cross pins and other hardened parts, the surfaces of which are subject to wear are ground to finish size after being hardened. The appearance of these joints is such that they may be used on the very highest type of machinery. They will answer any ordinary purpose for which a universal joint may legitimately be used. To facilitate connection to shafts or spindle ends the hubs of these joints may be bored out, turned down or in fact fitted in most any manner desired. Used extensively on adjustable gang drills and wood boring machines. Also on the moving feed shafts of milling, grinding, boring and various special machines. For operating mechanisms for revolving ventilating funnels on steamships. For driving self-aligning boring bars. On printing presses and various paper handling machinery.

Suitable for all shaft sizes up to and including 2¼-inch diameter. In ordering specify size number and joint required

Dimensions, Inches: Outside Diameter	Largest Diameter of Hole to Bore	Greatest Depth to Hole	Length of Joint	Angle	Approx. Weight Pounds	Price per Joint Solid Ends
7/8	9/16	5/8	2¼	45°	.34	$2.80
1	11/16	7/8	3	45°	.61	3.00
1⅛	¾	7/8	3	45°	.82	3.35
1¼	7/8	1⅛	3¾	45°	1.14	3.50
1½	1	1⅜	4½	45°	2.07	4.10
1¾	1⅛	1⅝	5¼	45°	3.2	4.90
2	1⅜	1⅞	6	45°	4.86	6.10
2 7/16	1¾	2⅜	7½	45°	9.	8.10
2 13/16	2	2⅝	8¼	45°	13.	15.30
3 3/16	2¼	3	9½	45°	19.5	22.50

Bond "Spiro" Compression Couplings

Single Flange Type

A—Sleeve B—Outer Shell C—Inner Shell

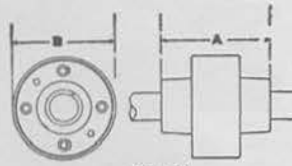


Fig. 42

This Coupling has 50% more gripping power than any other compression coupling on the market. By reason of a spiral slot, cut the whole sleeve length, it wraps around the shaft ends and grips,—every square inch of it.

The sleeve marked "A" is tapered from the center towards each end. The outer shell "B" and the inner shell "C" are bored tapered to correspond. When the sleeve is placed in position over the shaft ends, the shells are placed on the sleeve and the bolts are tightened to draw up the two shells over the sleeve.

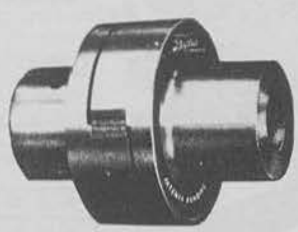
By this method of one taper drawing over the other and the unique spiral slot in the sleeve, the coupling is enabled to exert an enormous gripping power on the shafts, and they become as one continuous length.

Shaft Size	List Price	Code	A	B	Shaft Size	List Price	Code	A	B
¾	$4.00	itrax	2⅝	4⅜	1 15/16	$8.00	itrgd	7½	7
15/16	4.25	itrby	3½	4¾	2 3/16	9.00	itrhe	8⅛	7 7/16
1 3/16	4.75	itrcz	3⅞	5 5/16	2 7/16	10.75	itrif	8⅞	7 13/16
1 7/16	5.50	itreb	5	5⅝	2 11/16	13.00	itrjg	9¼	8½
1 11/16	6.25	itrfc	5¾	6	2 15/16	16.00	itrkh	9¾	8 13/16

For reducing coupling, add 20% to largest bore.

Bondtru REG. CAN. PAT. OFF.

Flexible Insulated Coupling



The Bondtru Flexible Insulated Coupling is suitable for direct drives with practically every kind of machine, especially Pumps, Compressors and Gas Engines.

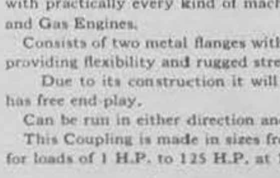
Consists of two metal flanges with a cross member of leather between, providing flexibility and rugged strength.

Due to its construction it will take care of intermittent loads and has free end-play.

Can be run in either direction and its fine balance is exceptional.

This Coupling is made in sizes from 2⅛" to 12¼" outside diameter—for loads of 1 H.P. to 125 H.P. at 100 R.P.M.

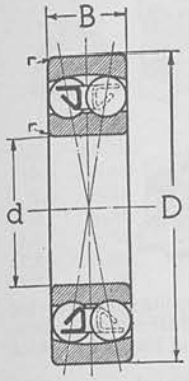
Prices upon application.



In addition to the larger sizes of Bondtru Couplings shown above, we manufacture two "Junior" types of this same Coupling for fractional horsepower loads. Sizes are 1⅛" and 1 5/16" outside diameter for ¼ and ½ H.P. respectively.

Prices upon application.

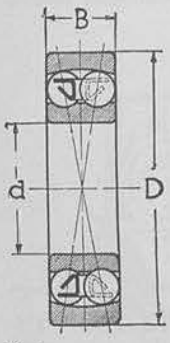
No. 1200 Series SKF Self-Aligning Radial Ball Bearings—Light Series



Bearing No.	Dimensions, Inches d	D	B	*R
1200	.3937	1.1811	.3543	.024
1201	.4724	1.2598	.3937	.024
1202	.5906	1.3780	.4331	.024
1203	.6693	1.5748	.4724	.039
1204	.7874	1.8504	.5512	.039
1205	.9843	2.0472	.5906	.039
1206	1.1811	2.4409	.6299	.039
1207	1.3780	2.8346	.6693	.039
1208	1.5748	3.1496	.7087	.039
1209	1.7717	3.3465	.7480	.039
1210	1.9685	3.5433	.7874	.039
1211	2.1654	3.9370	.8268	.059
1212	2.3622	4.3307	.8661	.059
1213	2.5591	4.7244	.9055	.059
1214	2.7559	4.9213	.9449	.059
1215	2.9528	5.1181	.9843	.059
1216	3.1496	5.5118	1.0236	.079
1217	3.3465	5.9055	1.1024	.079
1218	3.5433	6.2992	1.1811	.079
1219	3.7402	6.6929	1.2598	.079
1220	3.9370	7.0866	1.3386	.079
1221	4.1339	7.4803	1.4173	.079
1222	4.3307	7.8740	1.4961	.079

Bearing No.	Each	Weight Pounds	Bearing No.	Each	Weight Pounds
1200	$1.70	.07	1212	$9.30	1.99
1201	1.80	.09	1213	11.50	2.53
1202	1.90	.11	1214	12.50	2.75
1203	2.10	.17	1215	13.70	3.00
1204	2.60	.26	1216	16.00	3.67
1205	3.00	.32	1217	19.80	4.62
1206	4.00	.48	1218	23.00	5.61
1207	4.60	.72	1219	28.00	6.82
1208	5.40	.92	1220	36.00	8.17
1209	6.00	1.03	1221	42.00	9.68
1210	7.00	1.18	1222	47.00	11.33
1211	8.00	1.58	....	.....	.....

*Dimension R is the radius of the maximum fillet on the shaft or in the housing which will be cleared by bearing.

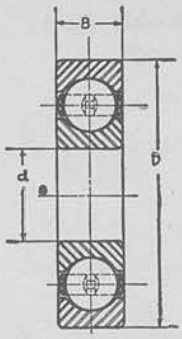


No. 1300 Medium Series SKF Self-Aligning Ball Bearings

*In larger bearing sizes, Nos.1318 to 1324 inclusive, the balls project beyond the sides of the races to an over-all width as given by B1.

†Dimension R is the maximum radius of the fillet on the shaft or in the housing which is to be cleared by the bearing.

Bearing No.	Each	Dimensions, Inches d	D	B	*B1	†R	Wt. Lbs.
1300	$2.10	.3937	1.3780	.4331	....	.024	.13
1301	2.30	.4724	1.4567	.4724	....	.039	.15
1302	2.50	.5906	1.6535	.5118	....	.039	.21
1303	2.90	.6693	1.8504	.5512	....	.039	.29
1304	3.50	.7874	2.0472	.5906	....	.039	.36
1305	4.10	.9843	2.4409	.6693	....	.039	.55
1306	5.20	1.1811	2.8346	.7480	....	.039	.86
1307	6.00	1.3780	3.1496	.8268	....	.059	1.13
1308	6.80	1.5748	3.5433	.9055	....	.059	1.60
1309	8.50	1.7717	3.9370	.9843	....	.059	2.11
1310	10.00	1.9685	4.3307	1.0630	....	.079	2.68
1311	12.40	2.1654	4.7244	1.1417	....	.079	3.48
1312	15.50	2.3622	5.1181	1.2205	....	.079	4.40
1313	19.10	2.5591	5.5118	1.2992	....	.079	5.39
1314	22.50	2.7559	5.9055	1.3780	....	.079	6.62
1315	28.00	2.9528	6.2992	1.4567	....	.079	8.14
1316	32.20	3.1496	6.6929	1.5354	....	.079	9.35
1317	39.00	3.3465	7.0866	1.6142	....	.098	11.44
1318	47.20	3.5433	7.4803	1.6929	1 49/64	.098	12.98
1319	56.00	3.7402	7.8740	1.7717	1 57/64	.098	15.29
1320	66.00	3.9370	8.4646	1.8504	2 1/64	.098	18.37
1321	77.00	4.1339	8.8583	1.9291	2 1/8	.098	22.55
1322	96.00	4.3307	9.4488	1.9685	2 5/32	.098	26.68

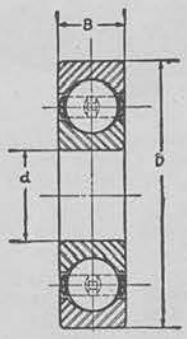


No. 6300 Series SKF Single Row Deep Groove Ball Bearings Medium Series

*Dimension R is the radius of the maximum fillet on the shaft or in the housing which will be cleared by bearing.

Bearing No.	Each	Dimensions, Inches d	D	B	*R	Weight Pounds
6300	$2.10	.3937	1.3780	.4331	.024	.11
6301	2.30	.4724	1.4567	.4724	.039	.12
6302	2.50	.5906	1.6535	.5118	.039	.15
6303	2.90	.6693	1.8504	.5512	.039	.27
6304	3.50	.7874	2.0472	.5906	.039	.34
6305	4.10	.9843	2.4409	.6693	.039	.55
6306	5.20	1.1811	2.8346	.7480	.039	.80
6307	6.00	1.3780	3.1496	.8268	.059	1.03
6308	6.80	1.5748	3.5433	.9055	.059	1.41
6309	8.50	1.7717	3.9370	.9843	.059	1.88
6310	10.00	1.9685	4.3307	1.0630	.079	2.47
6311	12.40	2.1654	4.7244	1.1417	.079	3.07
6312	15.50	2.3622	5.1181	1.2205	.079	3.81
6313	19.10	2.5591	5.5118	1.2992	.079	4.70
6314	22.50	2.7559	5.9055	1.3780	.079	5.72
6315	28.00	2.9528	6.2992	1.4567	.079	6.84
6316	32.20	3.1496	6.6929	1.5354	.079	8.13
6317	39.00	3.3465	7.0866	1.6142	.098	9.53
6318	47.20	3.5433	7.4803	1.6929	.098	11.03
6319	56.00	3.7402	7.8740	1.7717	.098	12.78
6320	66.00	3.9370	8.4646	1.8504	.098	15.83
6321	77.00	4.1339	8.8583	1.9291	.098	18.22
6322	96.00	4.3307	9.4488	1.9685	.098	21.47

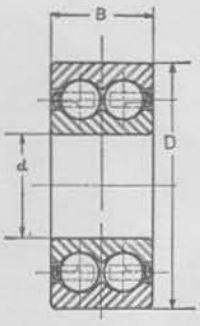
No. 6400 Heavy Series SKF Single Row Deep Groove Ball Bearings



Bearing No.	Each	Dimensions, Inches d	D	B	*R	Wt. Lbs
6403	$4.60	.6693	2.4409	.6693	.039	.65
6404	5.20	.7874	2.8346	.7480	.039	.90
6405	6.00	.9843	3.1496	.8268	.059	1.19
6406	7.30	1.1811	3.5433	.9055	.059	1.59
6407	8.70	1.3780	3.9370	.9843	.059	2.06
6408	10.50	1.5748	4.3307	1.0630	.079	2.69
6409	13.00	1.7717	4.7244	1.1417	.079	3.41
6410	16.00	1.9685	5.1181	1.2205	.079	4.20
6411	19.00	2.1654	5.5118	1.2992	.079	5.13
6412	22.90	2.3622	5.9055	1.3780	.079	6.22
6413	29.60	2.5591	6.2992	1.4567	.079	7.44
6414	39.50	2.7559	7.0866	1.6535	.098	10.97
6415	55.00	2.9528	7.4803	1.7717	.098	13.06
6416	65.00	3.1496	7.8740	1.8898	.098	15.27
6417	75.00	3.3465	8.2677	2.0472	.118	18.75
6418	85.00	3.5433	8.8583	2.1260	.118	21.47

*Dimension R is the radius of the maximum fillet on the shaft or in the housing which will be cleared by the bearing.

No. 5400 Heavy Series SKF Double Row Deep Groove Ball Bearings



Bearing No.	Each	Dimensions, Inches d	D	B	*r	Wt. Lbs.
5405	$9.00	.9843	3.1496	1.3750	.059	2.06
5406	10.90	1.1811	3.5433	1.5625	.059	2.87
5407	13.00	1.3780	3.9370	1.7500	.059	3.75
5408	15.70	1.5748	4.3307	1.9375	.079	5.06
5409	19.50	1.7717	4.7244	2.1250	.079	6.66
5410	24.00	1.9685	5.1181	2.3125	.079	8.19
5411	28.50	2.1654	5.5118	2.5000	.079	10.44
5412	34.30	2.3622	5.9055	2.6250	.079	12.63
5413	44.40	2.5591	6.2992	2.8125	.079	14.85
5414	59.20	2.7559	7.0866	3.1250	.098	21.81
5415	82.50	2.9528	7.4803	3.2500	.098	25.13
5416	97.50	3.1496	7.8740	3.4375	.098	28.5
5417	112.50	3.3465	8.2677	3.6250	.118	33.

*Dimension r is the radius of the maximum fillet on the shaft or in the housing which will be cleared by the bearing.

SKF Steel and Bronze Balls

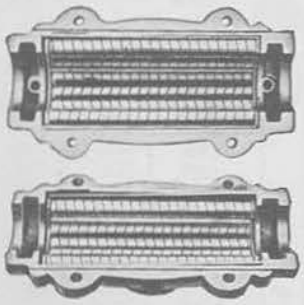
Steel balls are guaranteed to be true to size within plus or minus .00025.

Bronze balls are produced from high quality bronze containing approximately 65% copper. Extra large sizes are formed from a special aluminum bronze composition highly resistant to acid.

Size Inches	Steel per 1000	Bronze per 1000	Size Inches	Steel per 1000	Bronze per 1000
1/16	$5.50	.....	7/8	$160.00	$325.00
3/32	5.25	.....	29/32	180.00	.....
1/8	5.00	$5.00	15/16	205.00	400.00
5/32	6.00	6.00	31/32	235.00	.....
3/16	7.00	7.00	1	260.00	475.00
7/32	8.00	8.00	1 1/16	300.00	550.00
1/4	9.00	9.50	1 1/8	350.00	650.00
9/32	10.00	11.50	1 3/16	410.00	750.00
5/16	12.00	14.00	1 1/4	475.00	850.00
11/32	15.00	.....	1 5/16	570.00	975.00
3/8	18.00	24.00	1 3/8	680.00	1125.00
13/32	21.00	.....	1 7/16	790.00	1300.00
7/16	25.00	40.00	1 1/2	900.00	1500.00
15/32	30.00	.....	1 9/16	1025.00	1700.00
1/2	35.00	58.00	1 5/8	1150.00	1925.00
17/32	40.00	.....	1 11/16	1280.00	2175.00
9/16	46.00	80.00	1 3/4	1430.00	2450.00
19/32	54.00	.....	1 13/16	1600.00	2750.00
5/8	62.00	110.00	1 7/8	1780.00	3100.00
21/32	71.00	.....	1 15/16	2000.00	3450.00
11/16	80.00	140.00	2	2250.00	3800.00
23/32	90.00	.....	2 1/8	2500.00	4500.00
3/4	105.00	175.00	2 1/4	2800.00	5200.00
25/32	118.00	.....	2 3/8	3200.00	6000.00
13/16	130.00	250.00	2 1/2	3800.00	7000.00
27/32	146.00	.....	.....	.....	.....

Hyatt Line Shaft Roller Bearings

Type 9 Ball and Socket



The principle upon which the Hyatt bearing is constructed is that of supporting the line shaft on rollers which produce a true rolling motion between the shaft and the box in which the rollers are enclosed.

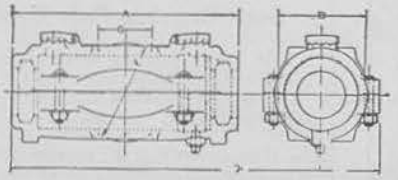
Their slight flexibility takes care of irregularities in the surface of the shaft as well as all shaft distortions caused by belt pull or misalignment of shafting. This flexibility insures full line contact at all times and avoids local overloading and possible wear.

Self-lubricating because each of the hollow helically wound rollers acts as its own oil container and oil distributor, insuring positive lubrication over all rolling surfaces. There is no oil leakage and the economy is such that lubrication three or four times a year is sufficient in most cases.

The Hyatt line shaft bearing is split throughout so that it can be applied to any shaft at any time without disturbing pulleys, collars or couplings. The box is opened, applied around the shaft and two halves securely bolted together.

No adapter because there is no inner race. An inner race when properly built must be in one piece, and the only way to hold such a race on a line shaft is by means of an adapter. Adapters get loose and shift, due to vibration and to temperature changes. The limited play in an adapter bearing makes it subject to end thrust.

Dimensions



Size Inches	Dimensions, Inches A	B	F	G
1 7/16	8 1/4	3 3/16	3 5/8	1 7/8
1 11/16	9 1/4	3 5/8	3 7/8	1 15/16
1 15/16	10 1/2	4	4 1/2	2 1/2
2 3/16	11 1/2	4 1/4	4 7/8	2 1/2
2 7/16	13	5	5 5/8	3
2 11/16	14	5 3/8	5 7/8	3
2 15/16	15 1/4	5 7/8	6 1/4	3 1/2
3 3/16	16 1/2	6 1/8	6 7/8	3 1/2
3 7/16	17 1/4	7 1/8	7 1/2	3 3/4

Prices

Size Inches	Complete Box Piece No.	Wt. Lbs.	Each	Roller Assembly Piece No.	Each	Planished Outer Race Piece No.	Each
1 7/16	20102	14	$19.20	2-15320	$3.60	2-4005	$1.00
1 11/16	20172	18	20.80	2-15325	4.20	2-4010	1.10
1 15/16	20242	24	24.00	2-15328-9	5.60	2-4015	1.20
2 3/16	20312	30	27.00	2-15335	7.00	2-4020	1.20
2 7/16	20382	43	38.60	2-15340-1	10.80	2-4025	1.60
2 11/16	20452	53	46.80	2-15345	12.20	2-4030	1.80
2 15/16	20522	66	50.80	2-15350	13.00	2-4035	2.00
3 3/16	20592	67	57.60	2-15355-6	13.80	2-4040	2.40
3 7/16	20665	110	84.00	2-15214	34.00	4-4045-8	3.20

When ordering bearings specify make of frames with which they are to be used.

Noera Bench Oilers

Wide mouth bench oilers made with roll thread spout, copper plated inside and out. Made non-leakable. New shaped dome makes them easy to handle. Spout caps made with new rolled thread and a special rolled edge to make starting the threads easy. Heavy Algico washer fits snugly against neck of can, making connection oil-tight. All domes stamped from sheet metal in one piece.

No.	Price per Doz.	Cap. Oz.	Overall Hght., In.	No.	Price per Doz.	Cap. Oz.	Overall Hght., In.
7A	3.00	1	2½	14A	7.50	8	5⅝
8A	3.50	1½	3½	14AA	8.00	8	7⅝
12	4.50	4	4⅞	14B	8.50	8	11⅝
13	5.50	5⅓	5⅜	15	9.25	16	6⅜
13A	6.00	5⅓	7⅜	15A	9.75	16	8¼
14	6.50	5⅓	11⅜	16	10.50	16	12⅛

Noera Flexible Spout Oilers

Just bend the spout and oil flows around the corner. Spouts will not break or crimp if stepped on. Retains position until flexed again.

Spout made of flexible steel tubing, highly polished, lined with asbestos and absolutely leak-proof. One piece domes. Clock spring steel bottom double seamed to dome.

No.	Per Dozen	Capacity, Pints	Height Spout, Inches	Weight Per Dozen, Pounds
13F	5.00	⅓	7½	3
14F	5.50	½	7½	3¾
15F	6.00	¾	7½	4¼

Noera Chace Oilers

Made of tin plate with anti-rust finish. Tinned steel bottom.

Packed twelve of one size to a carton.

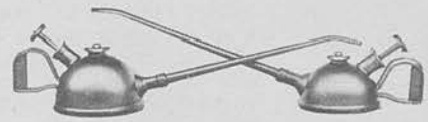
No.	Price per Gross	Capacity Oz.	Height Over-all, In.
00	12.00	1	3¾
0	15.00	1½	4⅛
1	18.00	2½	4½
2	24.00	4	6⅛
3	27.00	7	7⅜
4	33.00	10	8⅜
5	42.00	12	8⅛

Year 'Round Pump Oilers

Will operate under all conditions. One can pump a drop of oil at a time or shoot oil 20 to 25 feet with the same stroke. Valve mechanism is easily cleaned. The spouts on the Nos. 1000, 2000 and 3000 are of very heavy gage steel, well soldered and with an extra heavy brass union nut. No. 500 has a heavy gage brass spout.

No.	Price Each	Cap. Pts.	Spout In.	Overall In.	Wt. Per Doz. Lbs.
500	1.20	¾	5	9¼	11⅜
1000	1.65	1	10	13⅞	14
2000	1.80	1½	12	17⅜	16 11/16
3000	2.00	2	15	20⅜	19⅜

Noera Pump Oilers



The long spout and pump action makes this oiler excellent for reaching inaccessible places.

Equipped with a strong positive pump which places the discharge of oil always under control. Made from the best quality steel. Copper plated finish. 1¼-inch filler opening.

No.	Per Dozen	Lgth. of Spout Inches	Capacity Pints	Weight Per Doz. Pounds	No.	Per Dozen	Lgth. of Spout Inches	Capacity Pints	Weight Per Doz. Pounds
800	23.00	3	½	8½	802½	24.75	3	1	9½
801	23.50	5	½	9	803	25.25	5	1	10
802	24.00	9	½	10	804	25.75	9	1	11

Railroad Oilers

Steel, copper plated inside and out. One piece dome. Bottom is made of clock spring steel and is double seamed to the dome making a leak-proof connection. Spouts are interchangeable and the connections are made with a union so that the spout can be pointed in any direction. 1¼ inch opening.

No.	Cap. Pts.	Length Spout Ins.	Height Dome Ins.	Diam. Dome Ins.	Each
10	1	12	5⅛	3¼	14.00
10½	1½	12	5¼	3⅝	16.00
11	2	18	5⅜	4⅛	18.00

Improved Railroad Oilers

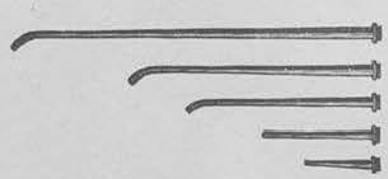
These oilers are drawn seamless in two parts from .025 cold rolled steel, copper-plated inside and out and highly polished.

Spout connections are made with a union and may be pointed in any direction.

Spout are interchangeable.

No.	Capacity Pints	Diameter Inches	Length Spout Inches	Weight Per Dozen Pounds	Price Per Dozen
100	1	3¼	12	10	14.00
101	2	4⅛	12	13¾	18.00
111	4	5	12	20¾	20.00

Noera Oiler Spouts



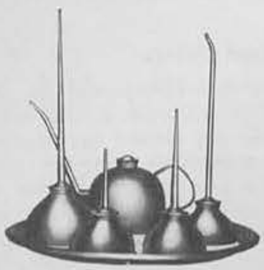
All spouts are individually inspected for leakage and are lined with an Algico washer. Extra spouts can be furnished for all types of our oilers.

In ordering specify style wanted and size, whether roll thread or cut thread and also finish.

Prices on Application

Noera Engineer's Sets

No. C-30



No. C-40

Engineer sets are made in steel, copper plated inside and out. Each set consists of several different length spouts for convenience and all cans are made with large openings so they can be easily filled. Spouts are individually inspected for leakage. A heavy leather washer in the spout caps fits snugly against the opening of the can making this connection oil-tight. The domes are made in one piece and in a new design; they are more convenient to handle and more graceful in appearance. A plain 14-inch tray is included in each set.

No. C-30 set oilers has Nos. 12, 13, 14 and No. 19A filler. Weight, No. C-30, 3½ lbs.

No. C-40 set oilers has Nos. 12, 13, 14, 16 and No. 210 filler. Weight, No. C-40, 4 lbs.

Copper Plated Steel

Price, No. **C-30**......................Per Set **5.00**
" No. **C-40**........ .... " " **7.00**

Noera Engineers' Fillers

Made strong and serviceable. The domes are drawn in one piece from heavy gauge steel, and made with 1¼ in. filler opening. Spout also has large opening, and connected close to bottom of can. Copper plated inside and out.

No.	Price per Doz.	Capacity Pints	Overall Height, In.	Weight per Dozen, Lbs.
19	**14.00**	1	6½	7½
19A	**17.00**	1½	7¾	10½
210	**20.00**	2	4½	11
211	**24.00**	4	5½	15½

Noera Tallow Pots

The domes are drawn in one piece from heavy, indestructible steel, they are absolutely leak-proof and unaffected by heat. Made with a large 1¼ in. filler opening. The cover is fastened to the handle with a brass chain, eliminating any possible chance of misplacing or losing it. Copper plated both inside and out.

No.	Price per Doz.	Capacity Pints	Overall Height, In.	Weight per Dozen, Lbs.
212	**21.00**	2	4½	10½
213	**25.00**	4	5½	16

Wall "Everlasting" Brazed Steel Bench Oilers

Bent Spout

Steel spouts set in solid brass machine cut bushings. Cut thread brass collars are patented. Clock spring steel bottoms are securely brazed on the outside. Bottoms will not lose their elasticity. Oilers are non-corroding and unaffected by heat. Highly polished and lacquered to give a lasting finish.

Six inches and longer furnished bent unless otherwise ordered.

No.	Price Per Doz.	Capacity Pints	Diameter Inches	Spouts Inches	Ship. Wght. Lbs., per Doz.
100	**4.00**	⅙	2¾	3	2⅝
104	**4.50**	⅙	2¾	4	3
204	**5.00**	⅓	3⅜	4	4¾
206	**5.50**	⅓	3⅜	6	5
209	**6.00**	⅓	3⅜	9	5½
304	**6.00**	½	3¾	4	5
306	**6.50**	½	3¾	6	5¼
309	**7.00**	½	3¾	9	5¾
404	**7.00**	¾	4⅛	4	7
406	**7.50**	¾	4⅛	6	7¼
409	**8.00**	¾	4⅛	9	7¾
504	**8.00**	1	4⅝	4	7¼
506	**8.50**	1	4⅝	6	7½
509	**9.00**	1	4⅝	9	8
512	**9.00**	1	4⅝	12	8¼

All sizes packed one dozen in a box.

Wall "Everlasting" Extra Bench Oiler Spouts

Spouts Inches		Price per Doz.	Net Weight Lbs., per Doz.
3	For No. 100 Oilers	**2.50**	⅝
4	For No. 104 Oilers	**2.75**	¾
4	Interchangeable For All Other Sizes	**3.00**	1⅛
6		**3.25**	1¼
9		**4.25**	1⅝
12		**5.75**	2

Wall Everlasting Pyramid Fillers

Brazed Steel

Designed with wide base and cap, rounded handle and long spout.

No.	Per Doz.	Capacity Quarts	Wt. Lbs. Per Doz.
43	**10.00**	1	14
44	**12.00**	2	20¼

Wall "Everlasting" Pyramid Torches

Brazed steel. Fire and leak-proof.

No.	**81**	**82**	**83**	**84**	**85**
Cap. Pts.	1	2	2	4	4
Burners .	1	1	2	1	2
Wt. Doz., Lbs. ...	11¼	16½	18	21	25½
Per Doz.	**9.00**	**10.00**	**12.00**	**12.00**	**14.00**

Wall Superior Welded Steel Tallow Pots

Heavy steel all brazed. A red heat will not cause a leak.

No. **40**, ½ gallon ....per Doz. **15.00**
No. **41**, 1 gallon ....per Doz. **18.00**

Penberthy Samson Screw Plunger Grease Cups

A substantial cast brass grease cup, which will stand any amount of hard usage; made of best steam metal, highly polished.

No.	I.P. Th. In.	I.D. In.	Extreme O.D. In.	Cap. Oz.	Price, Each Brass Fin.
800	1/8	1	1 3/8	1/3	$1.00
801	1/4	1 1/4	1 5/8	1	1.20
802	1/4	1 1/2	1 7/8	1 1/2	1.60
803	3/8	1 3/4	2 1/8	2 1/4	1.80
804	3/8	2	2 1/2	3 1/4	2.00
805	1/2	2 1/4	2 3/4	4 3/4	2.40
806	1/2	2 1/2	3 1/8	6	2.80
807	1/2	3	3 5/8	10	4.00

Can be furnished in N.P. at 20% advance in price.

Penberthy Saturn Plain Compression Grease Cups

A cast brass cup adapted for rough work. Well made from castings, making a strong, durable cup, which will outlast, many times over, a cheap spun brass article.

No.	I.P. Thread In.	O.D. In.	Cap. Oz.	Price, Each Not Pol.	Pol. Brass
950	1/8	1 1/8	1/2	$.55	$.70
951	1/4	1 3/8	2/3	.75	.90
952	1/4	1 1/2	1	.95	1.15
953	3/8	2	2	1.25	1.50
954	1/2	2 3/4	3 1/2	1.70	2.15
955	1/2	3 1/4	5	2.30	2.90

No. 409 Penberthy Standard Brass Steam Whistles

With Valve

Diam. Bell In.	Length, In. Short Bell	Long Bell	Pipe Connection In.	Price, Each Short Bell	Long Bell
1 1/2	3	4 1/2	3/8	$4.00	$4.60
2	4	6	1/2	5.50	6.15
2 1/2	5	7 1/2	3/4	6.50	7.25
3	6	9	3/4	8.50	9.60
3 1/2	7	10 1/2	1	11.50	12.80
4	8	12	1 1/4	15.00	16.50
5	10	15	1 1/2	22.50	25.75
6	12	18	2	33.00	37.50

No. 410 Penberthy Standard Brass Steam Whistles

Without Valve

Diam. Bell In.	Length, In. Short Bell	Long Bell	Pipe Connection In.	Price, Each Short Bell	Long Bell
1 1/2	3	4 1/2	3/8	$3.00	$3.60
2	4	6	1/2	4.35	5.00
2 1/2	5	7 1/2	3/4	5.25	6.00
3	6	9	3/4	7.25	8.35
3 1/2	7	10 1/2	1	9.50	10.80
4	8	12	1 1/4	12.00	13.50
5	10	15	1 1/2	19.00	22.25
6	12	18	2	24.00	28.50

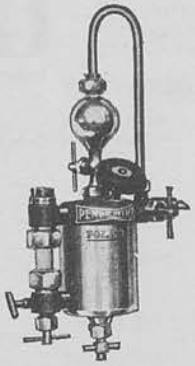
Penberthy Polar Sight Feed Double Connection Lubricators

Especially desirable for use on stationary engines, steam pumps, etc., and will also be found very satisfactory for use on traction and farm engines, etc., on which the steam pipe connections are suitable for the double connection style of cup. An all-around general purpose cup.

Finished in polished brass or nickel plated.

Capacity Pints	Each	Pipe Thread In.	Weight Pounds Boxed
1/3	....	3/8	3 3/4
1/2	....	3/8	4
1	....	1/2	5
2	....	1/2	6

Penberthy Polar Sight Feed Single Connection Lubricators

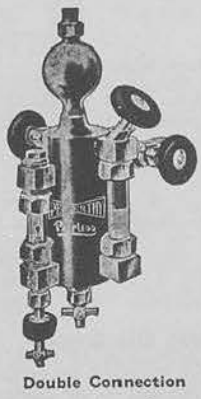


Built principally for outdoor service; specially adapted for portable and traction engine, hoisting engines, steam pumps, etc. Designed with a sight feed glass; the feed being oil through water, which shows amount of oil being fed to engine. Made of best steam metal, carefully assembled and tested.

Finished in polished brass or nickel plated.

Capacity Pints	Each	Pipe Thread Inches	Weight Pounds Boxed
1/3	....	3/8	3 3/4
1/2	....	3/8	4
1	....	1/2	5
2	....	1/2	6

Penberthy Peerless Sight-Feed Steam Lubricators



Double Connection

Single Connection

Especially designed for stationary marine, and the better class of engines.

Filler plug is set at an angle, giving ample space between it and condensor for grip of hand.

Drain valve for the sight-feed glass is directly under oil-regulating valve, a combination of two valves in one, but operated entirely independent of each other. Position of this drain valve protects oil-regulating valve from being covered with oil and water when draining sight-feed glass. The Peerless will feed heavy oils and work well in cold weather, as the arm passing through the oil body is constantly filled with live steam, keeping the oil always in a liquid condition.

The single connection lubricator is used where the double-connection cannot be installed on account of lack of space. Double-connection style is recommended, because it has two connections to the steam pipe, and consequently has better condensation and better feeding qualities.

Capacity.....pints	1/3	1/2	1	2
I.P. Thread.....inches	1/2	1/2	1/2	1/2
Double Connection, Brass Fin..ea.	....	....	....	....
Double Connection, Nickel Fin.ea.	....	....	....	....
Single Connection, Brass Fin...ea.	....	....	....	....
Single Connection, Nickel Fin..ea.	....	....	....	....

Exterior View

No. 200 Plain Compression Empress Grease Cups

Plain type cups drawn from sheet metal. Made of steel. Specify style number, size number, and size of thread and finish.

Sectional View

Size No.	Per 100	Cap. Oz.	Thread, In. Stock	Optional	I.D. In.	Height, In. Closed	Open
000	$8.90	1/4	1/8 Pipe	..	3/4	1 15/32	1 3/4
00	10.60	1/2	1/8 Pipe	1/4	1	1 3/4	2
0	14.20	2/3	1/4 Pipe	1/8	1 1/4	2 1/16	2 3/8
1	17.40	1	1/4 Pipe	1/8	1 1/2	2 11/32	2 5/8
2	25.70	2	3/8 Pipe	1/4	2	2 21/32	3
3	38.05	3 1/2	1/2 Pipe	3/8	2 1/2	3 1/16	3 1/2
4	57.00	5	1/2 Pipe	3/8	3	3 1/4	3 3/4
5	88.60	8	3/4 Pipe	..	3 1/2	4	4 1/4

Interior

No. 56 Empress Oil Cups

Flush drive type ball valve oiler, practically dirt proof with generous oil passage and shoulder to drive to in assembling.

Made of nickel-plated steel.

Exterior

Size No.	Per 100	Normal Diam. Inches	Drive Into Hole Inches	Length Under Head Inches
00	$6.50	3/16+	3/16	1/4
0	6.50	1/4+	1/4	17/64
1	7.70	5/16+	5/16	19/64
2	8.65	3/8+	3/8	13/32
3	10.45	7/16+	5/16	1/2
4	12.00	1/2+	1/2	1/2
5	13.70	9/16+	9/16	19/32
6	16.10	5/8+	5/8	19/32
7	24.00	3/4+	3/4	23/32

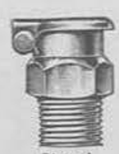
No. 77 Empress Oil Cups

Open

Threaded type, hinge lid oiler for use where space is limited.

This cup has large opening and the cap is self-closing. Oiler can be used with felt plug or waste as oil retarder.

Made of nickel-plated steel.



Closed

Size No.	0	1	2	3	4
No. 77 .... per 100	$13.95	13.95	14.40	15.85	16.35
Stock Thread	10-32	1/4-32	5/16-32	3/8-24	1/8" Pipe
Height Closed ... in.	1/2	19/32	21/32	21/32	25/32
Height Open ... in.	3/4	7/8	1	1	1 1/4
Hex. Diameter ... in.	5/16	5/16	3/8	3/8	7/16

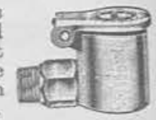
Style 78 Bowen-Empress Oil Cups

The lid of this oil cup can be opened with the oil can spout and is self closing. Made from sheet metal. This allows a slight yielding of the shank in driving. This quality also prevents breakage of castings when used in die cast metal. Nickel plated steel finish. Can be packed with waste or a felt plug to retard flow of oil if desired.

Size No.	Per 100	Drive Into Hole, In.	Ht. In.	Diam. In.
00	$7.20	3/16	25/64	11/32
0	7.20	1/4	27/64	11/32
1	7.20	5/16	27/64	7/16
2	9.60	3/8	17/32	17/32
3	11.20	7/16	19/32	41/64
4	$13.20	1/2	19/32	41/64
5	16.80	5/8	5/8	27/32
6	18.00	3/4	3/4	29/32
7	19.20	7/8	7/8	1 1/32
8	19.40	1	1	1 3/16

Style 116 Steel Brazed Elbow Oil Cups

Body is cold rolled strip steel. Stem is made of steel hexagon rod, riveted and brazed in the body. Spring is made of best music wire. Staple which forms part of the hinge straddles body and is brazed to it on both inside and outside. Nickel plate finish.



Size No.	I.P. Thread	Dia. Body	Price per 100
4	1/8	3/4	$23.60
5	1/8	25/32	26.90
6	1/8	1 1/32	33.60
7	1/4	1 3/16	43.70

Penberthy Salute Glass Body Oil Cups

With Snap Lever and Sight Feed

A high-grade stationary oiler. Easily filled and regulated. When lever is up cup is feeding, when lever is down feed is shut off. When lever is at 45° angle cup flushes. Cover has good vent, allowing oil to always feed freely.

No.	I. P. Thread In.	O. D. Glass In.	Ht. Glass In.	Cap. Oz.	Price, Each Brass Finish
550	1/8	1 1/4	1 1/8	5/8	$3.00
551	1/4	1 1/2	1 3/8	1	3.25
552	1/4	1 3/4	1 5/8	1 1/4	3.50
553	3/8	2	1 7/8	2 1/4	3.75
554	3/8	2 1/4	2 1/8	4	4.25
555	1/2	2 1/2	2 3/8	5	5.25
556	1/2	3	3	10	7.25
557	1/2	3 1/2	4	18	9.25

Penberthy Silex Automatic Spring Compression Grease Cups

A well made automatic grease cup, used extensively on slides, journals, eccentrics and crank pins. Made of cast brass. The amount of feed is regulated by the feed screw in hexagon. The cup requires no further attention, except refilling.

No.	I.P. Th. In.	I.D. In.	Extreme O.D. In.	Cap. Oz.	Price, Each Brass Fin.
900	1/8	1	1 3/8	1/3	$1.50
901	1/4	1 1/4	1 5/8	1	2.00
902	1/4	1 1/2	1 7/8	1 1/2	2.50
903	3/8	1 3/4	2 1/8	2 1/4	2.85
904	3/8	2	2 1/2	3 1/4	3.20
905	1/2	2 1/4	2 3/4	4 3/4	3.75
906	1/2	2 1/2	3 1/8	6	4.30
907	1/2	3	3 5/8	10	6.00

Penberthy Slide Top Glass Body Oil Cups

With Solid Shank

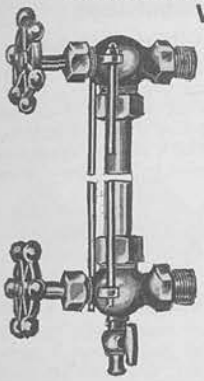
This is a substantial cup for every day use. It is fitted with screw-regulating stem and lock nut.

This cup has large opening for filling and sufficient vent to insure regular feeding.

No.	I. P. Thread In.	O.D. Glass In.	Ht. Glass In.	Cap. Oz.	Price, Each Brass Finish
300	1/8	1 1/4	1 1/8	5/8	$.85
301	1/4	1 1/2	1 3/8	1	1.00
302	1/4	1 3/4	1 1/2	1 1/4	1.25
303	3/8	2	1 3/4	2 1/4	1.50
304	3/8	2 1/4	2 1/8	4	2.00
305	1/2	2 1/2	2 3/8	5	2.50
306	1/2	3	3	10	3.60
307	1/2	3 1/2	4	18	5.10

All above can be furnished in N.P. at 20% advance in price.

Penberthy Standard Round Body Water Gauges



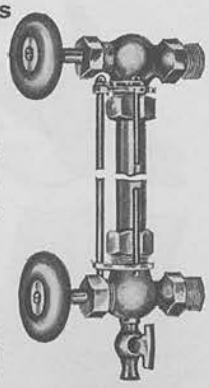
Rough Brass Body Iron Wheels

The Penberthy Standard Round Body Water Gauge is well designed, strong and practical.

It is suitable for 150 pounds steam pressure.

No.	I. P. Thread In.	Size Glass In.	No. of Guards	Price Each
81-A	3/8	5/8x12	2	$2.75
84-A	1/2	5/8x12	2	3.00
88-A	3/4	3/4x14	2	4.50

Penberthy Standard Round Body Water Gauges



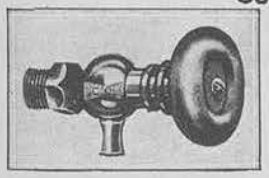
Polished Brass Body Wood Wheels

This gauge is suitable for 150 pounds steam pressure.

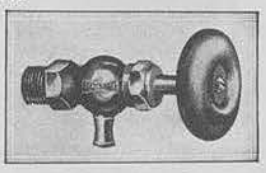
It is a well designed gauge, strong and practical.

No.	I. P. Thread In.	Size Glass In.	No. of Guards	Price Each
81-G	3/8	5/8x12	2	$3.75
84-G	1/2	5/8x12	2	4.25
88-G	3/4	3/4x14	2	5.50

Penberthy Standard Compression Gauge Cocks



Without Stuffing Box



With Stuffing Box

Registered for 150 pounds steam pressure. In ordering, specify number and size.

No.	Style Body	Style Wheel	Price, Each 3/8-In.	1/2-In.	3/4-In.
1	Rough Brass, No Stuffing Box	Iron	$.75	$.85	$.95
3	Rough Brass, with Stuffing Box	Iron	.90	.95	1.20
6	Fin. Brass, No Stuffing Box	Wood	.95	1.00	1.25
8	Fin. Brass, with Stuffing Box	Wood	1.20	1.30	1.45

Penberthy XL-96 Improved Ejectors

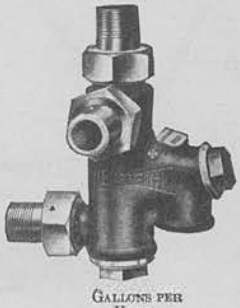
Lifts 22 to 25 Feet
Elevates 25 to 100 Feet
Pressure 30 to 100 Pounds

No.	Steam Connection Inches	Suction and Discharge Inches	Price, Each Brass	Iron Body Brass Jets
1	3/8	1/2	$8.00	.....
2	1/2	3/4	10.00	.....
3	3/4	1	15.00	.....
4	1	1 1/4	20.00	.....
5	1	1 1/2	25.00	$20.00
6	1 1/4	2	35.00	27.50
*7	1 1/2	2 1/2	50.00	40.00
*8	2	3	70.00	50.00
*9	2	3 1/2	105.00	70.00
*10	2 1/2	4	145.00	95.00

Penberthy Automatic Iniectors

Stock Model Left and Back No. 245-I

SPECIAL CONNECTIONS SAME LIST AS STOCK MODELS



Size	H. P. Based on Ordinary Tubular Boiler	H. P. Based on 30 Lbs. Water per H. P. per Hour	Pipe Connections Inches	Gallons per Hour 1 to 3-ft. Lift 60 to 110 Lbs. Steam Pressure Max.	Min.	Price Each
O	3 to 6	4 to 8	1/4	60	35	$15.00
OO	4 " 8	6 " 12	3/8	80	45	16.00
A	8 " 16	10 " 20	1/2	135	70	18.00
AA	12 " 22	15 " 30	1/2	180	100	20.00
B	17 " 32	22 " 45	3/4	260	140	25.00
BB	20 " 45	25 " 60	3/4	360	180	30.00
C	40 " 65	45 " 80	1	475	250	40.00
CC	45 " 80	50 " 100	1	600	325	45.00
D	50 " 100	60 " 135	1 1/4	800	425	55.00
DD	75 " 135	85 " 165	1 1/4	1000	525	60.00
E	100 " 180	125 " 235	1 1/2	1400	740	75.00
EE	115 " 255	150 " 320	1 1/2	1900	850	90.00
F	160 " 320	200 " 400	2	2400	1275	110 00
FF	200 " 400	250 " 500	2	3000	1600	125 00
GG	375 " 600	400 " 750	2 1/2	4200	2150	200.00

Plain Engine Lubricator

POLISHED BRASS

Fitted with Wood or Iron Wheels. With or without Cock and Tube.

Unless otherwise specified, these Lubricators will be fitted with Wood Wheels and with Cock and Tube, as illustrated.

This Lubricator is made from heavy castings and is strong and durable. The filler end of the oil body is made with a square thread, and when the filler plug, the seat of which is made of soft metal, is screwed down in place it makes a very tight connection, insuring both strength and safety on high pressures.

The drain and regulating valve seats are carefully ground tight to guard against leakage.

These Lubricators are particularly recommended for use on traction and stationary engines and steam pumps, and we guarantee them to give perfect satisfaction.

PRICE LIST

Size Number	1	2	3	4	5	6
Diameter.....inches	1 1/2	1 3/4	2	2 1/4	2 1/2	3
Capacity.....ounces	1 1/4	1 1/2	2 1/2	4	5	10
Pipe Thread.....inches	3/8	1/2	1/2	1/2	1/2	3/4
Fitted with Cock and Tube.....each	$3.40	$3.60	$3.90	$4.25	$4.75	$5.75
Plain, without Cock and Tube.....each	2.40	2.60	2.90	3.25	3.75	4.75
Code Word with Cock and Tube.....	**Castor**	**Cafe**	**Caustic**	**Caruso**	**Caddy**	**Cambric**
Code Word without Cock and Tube.....	**Pirate**	**Plaster**	**Ponder**	**Prince**	**Polloy**	**Peter**
Weight each boxed.....lbs.	1	1 1/4	1 3/4	2 1/4	2 1/2	3 1/4

Clipper Belt Lacing

Actual Size

Clipper belt lacing makes an ideal hinge joint, flexible as the belt itself. The hooks are made from a special steel wire of an analysis that combines great tensile strength with rigidity and wearing qualities, capable of standing a strain of over 400 pounds per inch. The ends of the belt are held in a firm grip. No two hook points enter the belt directly opposite, so no belt fibers are broken.

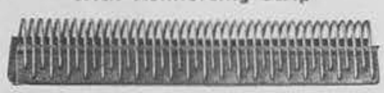
Suitable for every kind of belting—balata, fabric, leather, rubber, etc., not exceeding ⅜ inch in thickness.

Cross Section of Embedded Hook Before Joining

Joined

The success of Clipper Hooks lies in their design and in the manner in which one hook is placed behind the other as shown in the illustration. While a powerful grip is thus secured, no belting fibers are cut or injured. The belt is not weakened at the joint.

Clipper Belt Hooks
With Reinforcing Strip



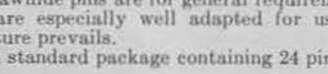
Prominent type. No exposed hook points for complete safety in handling. The reinforcing strip assures greater convenience and economy. The cards can be cut with a knife, without waste, to suit the width required for any belt. Each card holds 84 hooks.

Packed in boxes containing 12 cards (one size) and rawhide pins—sufficient for lacing both ends of belt, total width 80 inches.

Selection of size is determined by the thickness of the belt.

No.	For	Per Box
2	Thin Belts Over Small Sized Pulley	$1.30
3	Thin Belts Over Medium Sized Pulley	$1.40
4	Belts Not Over ¼ Inch Thick	$1.40
4½	For Heavy Duty Belts ¼ Inch Thick	$1.60
5	Belts Not Over 5/16 Inch Thick	$1.75
6	Belts Not Over ⅜ Inch Thick	$2.10

Clipper Rawhide Pins and Special Pins



Twisted rawhide pins are for general requirements.

Specials are especially well adapted for use in places where moisture prevails.

Packed in standard package containing 24 pins, 12 inches long.

Size No.	Diam. In.	For	Lubrihide per Pkg.	Rawhide per Pkg.	Special per Pkg.
13	3/32	Nos. 1, 2 and 3 Hooks	$1.40	$ .95	$1.20
12	7/64	Nos. 4 and 4½ Hooks	1.40	.95	1.20
11	⅛	No. 5 Hooks	1.40	.95	1.20
10	9/64	No. 5 Hooks	1.65	1.10	1.35
9	5/32	No. 6 Hooks	1.80	1.20	1.50
8	11/64	No. 6 Hooks	1.90	1.35	1.60
7	3/16	Heavy Belts		1.65	2.05
5	7/32	Heavy Belts		2.10	2.85
Assorted Sizes, Nos. 8 to 13			.55	1.00	1.25

Clipper Belt Lacing Machines

No. 3 Clipper Belt Lacers

A portable tool for general belt lacing work.

For lacing one end of any belt not exceeding 6 inches wide and ⅜ inch thick in one operation.

For wider belts repeat operation.

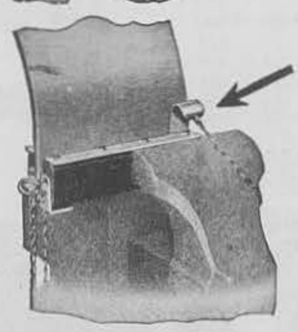
No. 3, Lacer.......each $34.50
No. 3, Including 1 Box Each, Nos. 3, 4 and 5 Clipper Hooks...each 28.15

No. 1 Clipper Lever Lacers

A very rapid belt lacer for belts not more than 2 inches wide and not exceeding ⅛ inch thick. Also made in 2-inch vise model.

No. 1 hooks are carded in 6-inch lengths, 20 cards per box, sufficient for lacing 34 two-inch or 77 one-inch belts complete.

No. 1, Lacer.....each $13.85
No. 101 Lacer, 2-In. Vise Model.....each $3.45
No. 1, Clipper Belt Hooks......per box $1.20



No. 0 Clipper Vise Lacers

Has a special pressure plate as indicated by arrow, which makes it possible to embed the hooks flush with the surface of the belt, also to clinch the points. The 4-inch model laces one end of belts up to 4 inches wide and not exceeding ⅜ inch thick in one operation. The 6-inch model laces one end of belts up to 6 inches wide and not exceeding ⅜ inch thick in one operation.

No. 0, 4-Inch Model.......each $4.15
No. 0, 6-Inch Model.......each 4.85

No. 6 Clipper Speed Lacers

Will lace one end of belt 6 inches wide in one operation. For wider belts repeat operation. A three-quarter turn of the double end crank will embed the hooks flush with the surface of any belt and clinch the points. The clinch keeps the hooks from working up and becoming worn or fatigued by pounding on the pulleys which often causes breakage.

No. 6, Stand Included.......each 105.00

No. 8 Clipper Speed Lacers

Laces one end of any belt 8 inches wide in one operation. For wider belts repeat operation. Suitable for all belts up to ⅜-inch thick.

No. 8, Stand Included.......each $160.00

The Clipper Joint

The joint is flexible both ways; nothing prevents belt from conforming to a crown pulley, therefore no power loss. No two hook points enter the belt directly opposite each other, therefore no belt fibers are broken.

Clipper Open End Belt Cutters

A tool for cutting belting from the roll as well as for squaring belt ends preparatory to lacing them.

The 6-Inch Cutter will cut and square all makes of belting up to 6 inches in width, even of the toughest material with a slight pressure on the handle; 10-inch Cutter up to 10 inches in width.

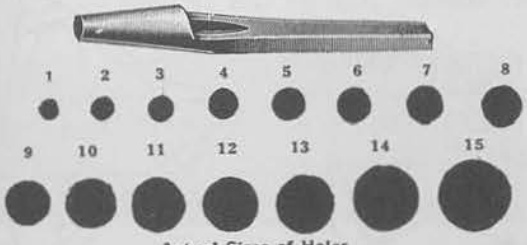
Belts which are squared with the Clipper Belt Cutter will not cause any undue strain on any part of the belting fibre or lacing.

The knife cannot be raised high enough to become a hazard.

Weight of 6-inch with open end, 11 pounds; closed end, 10 pounds; 10-inch open end, 16 pounds.

Price, 6-Inch Open End Cutter.....each $20.80
Price, 6-Inch Closed End Cutter.....each 17.00
Price, 10-Inch Open End Cutter.....each 27.75

Round Belt Punches
With Square Shank



Actual Sizes of Holes

Size No.	Price per Dozen	Size No.	Price per Dozen
1 to 6	$5.50	13 to 14	$10.00
7 to 10	$6.00	15 to 16	$12.00
11 to 12	$7.00	.....	.....

Oval Pointed Belt Hooks

These belt hooks are made of special tempered Norway wire; they will not break in clinching. Packed in patent boxes with metal corners.

No.	Per 1000	Lgth. In.	No. in Box	No.	Per 1000	Lgth. In.	No. in Box
15	$2.00	23/32	250	6	$8.50	1 3/4	250
14	2.40	25/32	250	5	11.00	2 1/32	250
13	2.60	3/4	500	4	14.00	2 9/32	100
12	2.80	25/32	250	3	16.00	2 13/32	100
11	3.00	29/32	500	2	20.00	2 15/32	100
10	3.50	1 1/32	250	1	30.00	2 1/2	100
9	4.00	1 1/8	250	.	60.00	3	100
8	5.00	1 1/4	250	.	70.00	3 1/2	100
7	6.00	1 15/32	250	.	.....	...	...

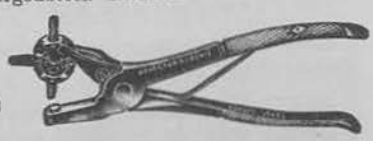
Moran's Round Belt Couplings

Size Belt In.	Price per Doz. Pr.	Size Belt In.	Price per Doz. Pr.	Size Belt In.	Price per Doz. Pr.
1/8	$3.00	5/16	$2.50	5/8	$6.00
5/32	3.00	11/32	3.00	11/16	7.50
3/16	2.50	3/8	3.00	3/4	9.00
7/32	2.50	7/16	3.50	7/8	13.00
1/4	2.00	1/2	4.00	1	18.00
9/32	2.50	9/16	5.00	.....	...

No. 18 Kraeuter Revolving Belt Punches

Kraeuter finish. Forged steel. Knurled handles.

Lgth....in.	8¾
No. of Tubes....	4
Gauge No. of Tubes..	4, 6, 7, 9
Price...per dozen	$18.00



Cling-Surface Belt Preservative

A belt treatment which both preserves drive belts and stops slipping so completely that all belts and rope drives can be run easy or slack under full loads. Makes tight belts unnecessary, permits completely slack operation with attendant large savings in power, lubrication, operating labor, and reduced stress on bearings and shafting.

Lengthens belt life; penetrates to every fibre of the belt; waterproofs; maintains pliability; reduces internal heat and wear during operation. Non-drying; contains no rosin or harmful ingredients. Effective for all types of belts.

Available in liquid form in 4 densities: Heavy, medium, light, and extra light; and in bars. Medium or light density is available in tubes. Light density is recommended for rubber and balata belts and where dust prevails, as in textile, woodworking, etc

Medium density is recommended for ordinary non-dusty conditions, as in laundries, machine shops, etc.

Heavy density is recommended for belts used in extremely hot temperatures or greatly overloaded.

Extra light density is best for very dusty plants or very cold temperatures.

Liquid in Cans

Container	1-Pt.	1-Qt.	½-Gal.	1-Gal.	3-Gal.	5-Gal.
Each	$.95	$1.85	$2.95	$5.25	*5.10	*4.90

*Furnished in drums, price per gallon.

Bars			Tubes	
Size	½	1	Large	$.90
Each	$.30	.55	Small	.30

Wing Solid Belt Dressing

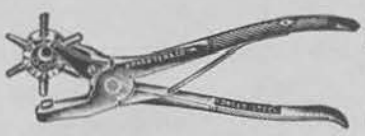
Put up in 1-pound bars of convenient shape and size. Applied to belts while in motion, stops all slipping instantly.

Increases efficiency of belts that are too narrow for the load.

Superior to rosin, tar and vegetable or animal oils. Equally satisfactory for leather, rubber, canvas or fabric belting.

Price, per 1-pound bar ..... .55

No. 19 Kraeuter Revolving Belt Punches



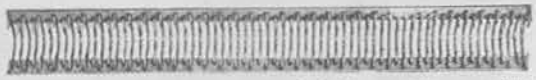
Kraeuter finish. Forged steel. Knurled handles. Length, 8¾ inches. Has 6 tubes. Gauge No. of tubes are 4, 5, 6, 7, 8 and 9.

Price, No. 18.....each $2.55
Price, No. 19.....each $2.90

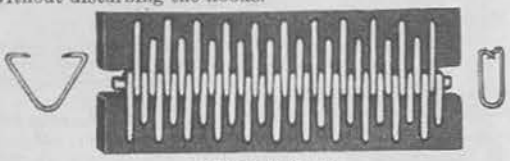
Extra Tubes for Nos. 18 and 19 Kraeuter Revolving Belt Punches

Bull Dog Belt Lacing

Hooks



Each hook does not perforate the belt on a given straight line across the belt, but by alternating long and short hooks with legs of equal length, a perfect staggered grip is obtained. The hooks are attached to rubberized paper side strips which hold them firmly in place and prevent lateral displacement. The section can be cut into the required lengths without disturbing the hooks.



Completed Joint

Put up in boxes containing twelve 12-inch strips, 1003 hooks, with rawhide pins. Packed in cases of 25 boxes.

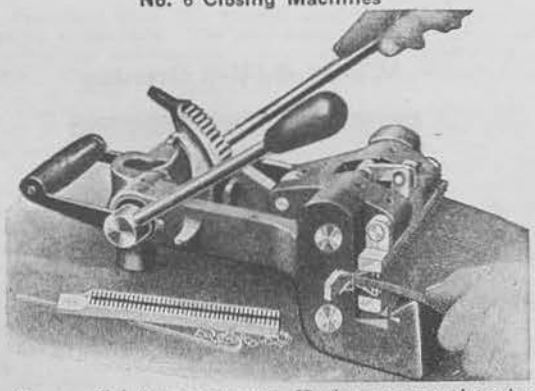
No.	For Size Lacing	Thickness Belt Inches	Per Box
2	Very Light Leather or 2-Ply Fabric	1/8	$1.20
3	Light Single Leather or 3-Ply Fabric	3/16	1.40
4	Heavy Single Leather or 4-Ply Fabric	1/4	1.40
5	Light Double Leather or 5-Ply Fabric	5/16	1.55
6	Heavy Double Leather or 6-Ply Fabric	3/8	2.10

Extra Rawhide Pins

In 12-inch lengths. Packed 24 pins to the bundle.

No. 2, 3/32-Inch Diameter	per bundle	$1.15
No. 3, 7/64-Inch Diameter	per bundle	1.15
No. 4, 1/8-Inch Diameter	per bundle	1.15
No. 5, 9/64-Inch Diameter	per bundle	1.30
No. 6, 5/32-Inch Diameter	per bundle	1.30

No. 6 Closing Machines



Has parallel jaw movement. Hooks are pressed against the magazine and forced into the belt at the proper angle. Hooks imbedded at a 45° angle have the best holding power.

Operates with one hand, leaving the other hand free to hold the belt so that it can be held in perfect alignment with the hooks. A 12-ton pressure is exerted between the jaws of the machine.

No. 6.....each $32.50

Belt Shear

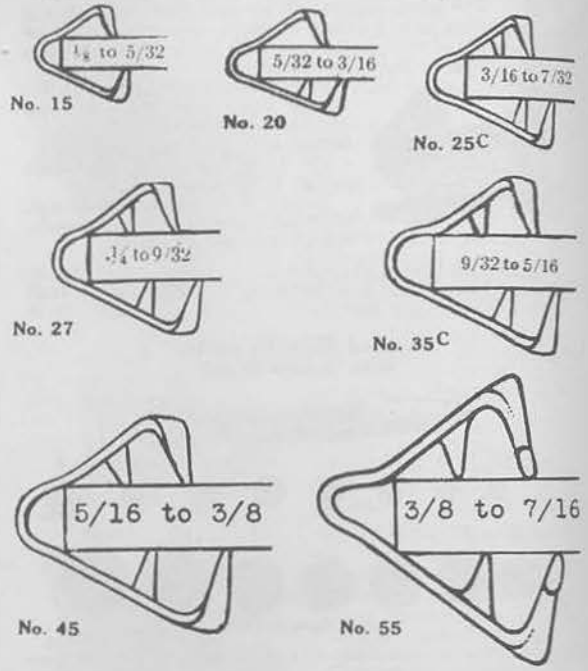
Because of the gear and rack method of applying the power, it operates practically without effort, leaving one hand free to hold the belt.

The knife arm lifts to make it easy to apply the belt. It squares a belt with perfect accuracy. Knife is protected by guard.

6-Inch Belt Shear....each $20.00
10-Inch Belt Shear....each 27.00

Flexible Steel Belt Lacing

The cut show actual size of end of Lacing Sections



Instructions

Break off sufficient Lacing (about 1/4" less than actual width of Belt to be laced) insert gauge pin, press Lacing tightly against a stop, hammer end prongs first (to keep Lacing square), then drive all prongs through a wooden surface, finishing by clinching on metal.

The Bar side of Lacing should be on Top side of Belt.

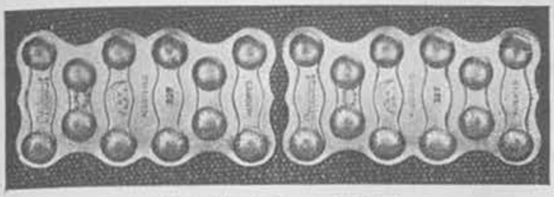
Size No.	Per Box	Contents Per Box		Belt Thickness Inches
		Number Sets	Belt Size	
15	$2.50	8	for 8"	1/8 to 3/32
20	2.60	5	" 12"	3/32 to 5/16
25C	2.50	6	" 8"	1/8 to 3/32
25	5.00	8	" 12"	1/8 to 3/32
27	5.30	8	" 12"	1/4 to 3/32
35C	2.30	4	" 8"	3/32 to 1/8
35	3.40	4	" 12"	3/32 to 1/8
45	4.50	4	" 12"	1/8 to 3/8
55	5.20	4	" 12"	3/8 to 1/8
65	6.00	4	" 12"	1/8 to 1/2

Size 15 complete with Rawhide hinge pins.

Sizes 20 to 45 inclusive complete with Rawhide or Rocker Hinge pins.

Sizes 55 and 65 complete with Rocker Hinge pins. Always order by number.

Crescent Belt Fasteners

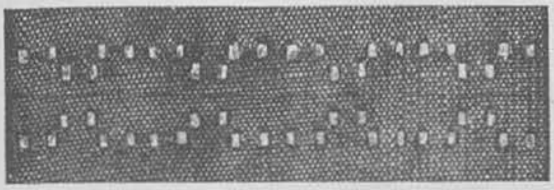


Outside of Crescent Joint

Crescent Plates are curved to fit the diameter of pulley for which they are intended. Patent roller edge prevents breaking back of joint. Nothing to pry up, fly off or work loose.

Cross Section

Crescent Rivets find their way through belt without cutting or severing lengthwise fibre. The clinch sinks below the surface of the belt. No wear nor noise. Crescent Belt Fasteners will outlast the belt.



Pulley Side of Crescent Joint

The strain is evenly distributed across the entire width of belt. Crescent joining is as smooth as endless on pulley side. Belt ends are butted tightly together. No gap to catch on shifter or guide.

Service Chart

Crescent Short-Grip Plates for Light Work

Smaller Pulley 3-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
25	$2.88	¾-1	2	1¾
45	5.76	1½	4	3¼
65	8.64	2	6	4½
85	11.52	2½	8	5½
805	11.52	3	8	6½

Crescent Medium-Grip Plates for General Work

Smaller Pulley 6-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
67	$8.64	1½	6	6
607	8.64	2	6	7½
87	11.52	2½	8	9½
107	14.40	3	10	11¼
127	17.28	3½	12	15¼
147	20.16	4	14	16½

Crescent Special-Grip Plates for General Work

Smaller Pulley 9-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
63	$11.52	2	6	10½
83	14.40	2½	8	12½
103	17.28	3	10	16½
123	20.16	3½	12	20½

Crescent Long-Grip Plates for Heavy Work

Smaller Pulley 12-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
109	$17.28	2½	10	21½
149	23.04	3	14	24½
1409	25.92	3½	14	30½
189	28.80	4	18	34½

For wider belts use 2 or more Crescent Plates.

Crescent Large Shank Rivets for Attaching Above Crescent Plates

Use a size ³⁄₁₆ inch longer than thickness of belt.

No.	Per Gross	Lgth. In.	Wt., Oz. per Gross	No.	Per Gross	Lgth. In.	Wt., per Gross Lbs.	Wt., per Gross Oz.
L5	$.70	⁵⁄₁₆	10	L10	$.90	¹⁰⁄₁₆	1	.
L6	.70	⁶⁄₁₆	11	L11	1.00	¹¹⁄₁₆	1	1
L7	.80	⁷⁄₁₆	12	L12	1.00	¹²⁄₁₆	1	2
L8	.80	⁸⁄₁₆	14	L13	1.10	¹³⁄₁₆	1	3
L9	.90	⁹⁄₁₆	15	L14	1.10	¹⁴⁄₁₆	1	4

Crescent Belt Fasteners

Continued

Crescent High-Speed Plates for Light Work

Smaller Pulley 2-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
20	$2.88	½-¾	2	1¼
40	5.76	1	4	1½
44	5.76	1¼	4	2¼
60	8.64	2	6	3½

Smaller Pulley 4¼-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
66	$8.64	1½	6	4

For wider belts use 2 or more Crescent Plates.

Crescent Small Shank Rivets for Attaching Crescent High-Speed Plates

Use a size ³⁄₁₆ inch longer than thickness of belt.

No.	Per Gross	Lgth. In.	Wt., Oz. per Gross	No.	Per Gross	Lgth. In.	Wt., Oz. per Gross
S5	$.50	⁵⁄₁₆	6	S 8	$.55	⁸⁄₁₆	8
S6	.50	⁶⁄₁₆	6½	S 9	.60	⁹⁄₁₆	9
S7	.55	⁷⁄₁₆	7	S10	.60	¹⁰⁄₁₆	10

Crescent Jumbo Plates for Extra Heavy Work

Smaller Pulley 24-Inch Diameter or Larger

No.	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
1011	$23.04	2	10	22½
1611	28.80	3	16	37½
2211	34.56	4	22	51½

For wider belts use 2 or more Crescent Plates.

For conveyor or elevator work where belt runs at a comparatively slow speed, Crescent Jumbo Plates can be used where smaller pulley is 18 inches diameter or larger.

Crescent Jumbo Rivets for Attaching Crescent Jumbo Plates

Use a size ⁵⁄₁₆ inch longer than thickness of belt.

No.	Per Gross	Length Inches	Weight per Gross Lbs.	Weight per Gross Oz.	No.	Per Gross	Length Inches	Weight per Gross Lbs.	Weight per Gross Oz.
J10	$1.25	¹⁰⁄₁₆	1	9	J14	$1.55	¹⁴⁄₁₆	1	14
J11	1.40	¹¹⁄₁₆	1	11	J15	1.70	¹⁵⁄₁₆	1	15
J12	1.40	¹²⁄₁₆	1	12	J16	1.70	¹⁶⁄₁₆	2	..
J13	1.55	¹³⁄₁₆	1	13	J18	1.85	¹⁸⁄₁₆	2	4

Crescent Rivets

S6 Crescent Small Shank Rivet

L9 Crescent Large Shank Rivet

J14 Crescent Jumbo Rivet

Crescent Rivets are of special construction, size and proportion especially adapted for this work. They are made in 3 styles as shown and in various lengths as indicated in the different tables.

Packed 1 gross of 1 size to a box.

No. 79 Crescent Extractors

To shorten or disconnect with a Crescent Rivet Extractor remove the Crescent Rivets from one side of the joint only. Cut out slack and rejoin, using a few new Crescent Rivets.

The Crescent Plates and half the Crescent Rivets are undisturbed and good for the life of the belt.

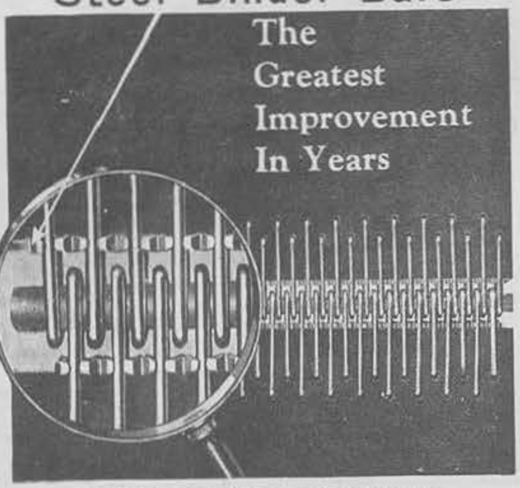
Crescent Rivet Extractor is a specially designed tool for removing Crescent Rivets quickly and easily.

Length, 8 inches.

Weight, 1 pound.

No. 79.................each **$1.00**

• *Safety* •
BELT HOOKS
WITH THE
Steel Binder Bars



SAFE—STRONG—NO WASTE

Easy to Lace with any Standard Belt Lacing Device

No. 3-4 for belts not over ¼" thick, per box	$1.65
No. 5 for belts not over 5/16" thick, per box	1.95
No. 6 for belts not over ⅜" thick, per box	2.40

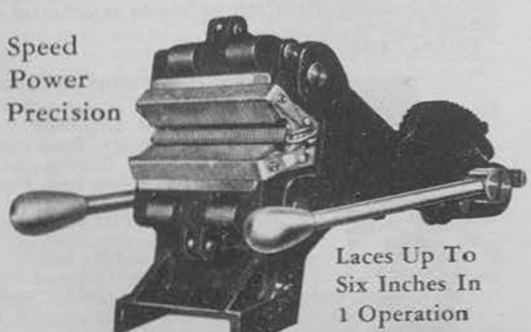
TWISTED RAWHIDE PINS

PACKED 24-12" PINS PER PACKAGE

		List Price Per Package
No. 6.	6/64" Diameter for No. 3-4 Hooks	$ .95
No. 7.	7/64" Diameter for No. 3-4 Hooks	.95
No. 8.	8/64" Diameter for No. 5 Hooks	.95
No. 9.	9/64" Diameter for No. 5 Hooks	1.05
No. 10.	10/64" Diameter for No. 6 Hooks	1.20
No. 11.	11/64" Diameter for No. 6 Hooks	1.25

Safety Portable Belt Lacer

Speed
Power
Precision



Laces Up To Six Inches In 1 Operation

Price $36.00

Copper Belt Rivets and Burrs

Burr

No. 8 Rivet

Rivets No. 8 x ½, ⅝, ¾, ⅞ or 1"	.60 lb.
No. 10 x ½, ⅝, ¾, ⅞ or 1"	.65 lb.
Burrs No. 8	.60 lb.
No. 10	.65 lb.

Rivets are packed in 1 lb. per package.

Burrs are packed in ½ lb. per package.

Use ½ lb. Burrs to 1 lb. Rivets.

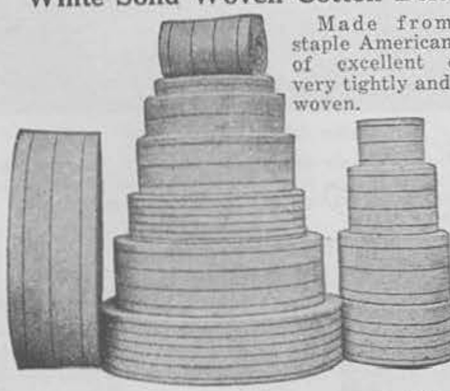
No. 15

Style B LX Belt Hooks
For Round Belts

Especially adapted for sewing machine belts. Packed 500 in a box.

No. 17, for Belts Smaller than ¼ Inch	per 1000	$2.00
No. 16, for Belts ¼ to 5/16 Inch	per 1000	2.25
No. 15, for Belts 5/16 to ⅜ Inch	per 1000	2.50
No. 14, for Belts Over ⅜ Inch	per 1000	3.00

White Solid Woven Cotton Belting



Made from long staple American cotton of excellent quality, very tightly and closely woven.

Per Running Foot—Effective July 1, 1927

Width Inches	No. 232 2-Ply	No. 348 3-Ply	No. 464 4-Ply	No. 580 5-Ply	No. 696 6-Ply	No. 818 8-Ply	No. 1045 10-Ply
1	$.08	$.12	$.18	$.22	$.27	....	....
1¼	.09	.13	.20	.25	.30	....	....
1½	.10	.15	.22	.27	.33	$.45	....
1¾	.11	.17	.24	.30	.36	.48	....
2	.12	.18	.26	.32	.39	.50	$.60
2¼	.14	.20	.28	.35	.43	.57	....
2½	.15	.22	.30	.37	.47	.62	....
3	.18	.26	.34	.42	.53	.71	....
3½	.20	.29	.39	.50	.61	.82	....
4	.23	.32	.43	.56	.67	.90	....
4½	.26	.36	.48	.63	.77	1.05	....
5	.28	.40	.53	.69	.84	1.15	....
5½	.31	.44	.58	.76	.93	1.25	....
6	.33	.47	.63	.81	1.00	1.33	....
6½	.37	.53	.69	.90	1.12	1.50	....
7	.40	.58	.74	.96	1.20	1.60	....
8	.44	.64	.84	1.08	1.35	1.80	....
9	.55	.78	1.00	1.30	1.60	2.20	....
10	.60	.85	1.10	1.45	1.75	2.50	3.15
12	.68	.97	1.27	1.70	2.06	2.90	3.65
14	.84	1.18	1.53	1.98	2.40	3.40	4.25
16	.96	1.35	1.75	2.25	2.70	3.90	4.90
18	1.08	1.53	1.98	2.52	3.05	4.35	5.45
20	1.20	1.70	2.20	2.85	3.40	4.90	6.15
22	1.30	1.85	2.44	3.20	3.85	5.45	6.85
24	1.40	2.00	2.64	3.40	4.10	6.00	7.50
26	1.55	2.30	2.87	3.90	4.60	6.65	8.35
28	1.70	2.50	3.15	4.15	5.00	7.10	8.90
30	1.80	2.65	3.45	4.40	5.40	7.50	9.40
32	2.00	2.95	3.80	4.85	6.00	8.25	10.35

Leather Belt Repairs

We maintain a special department for the repair of leather belting. This department is in charge of an expert leather belt maker, and fully equipped to repair or make endless all types of leather belting. Work can be done either at our shop or at your plant. We prefer to do work in our shop where practicable.

Useful Information

Belting

The driving power of a single leather belt is usually taken as 1 horse power for every inch of width at a speed of 600 to 700 feet per minute, from 400 to 500 feet per minute for a double belt.

To Find the Length of Belt Wanted: Add the diammeter of both pulleys together, divide by 2, and multiply quotient by $3\frac{1}{7}$; add this product to twice the distance in inches between the center of shafts, and the final sum will be the length required. Example: Diameter of large pulley 24 inches+12 diameter of small pulley=36÷2=18× $3\frac{1}{7}$=$56\frac{1}{2}$+216, twice distance between shafts=$272\frac{1}{2}$ inches, length required.

To Find Width of Leather Belts required for a given horse power: Multiply the horse power by the constant 2,750, then multiply the diameter of driven pulley by the number of revolutions and divide the first product by the latter, the quotient will be the width of belt required. Example: Horse power 28×constant 2,750=77,000; diameter of pulley 36 inches×revolution 200=7,200; 77,000÷7,200=10 inches, width required.

To Find the Horse Power which a leather belt will transmit: Multiply the width of belt by diameter of driven pulley in inches, multiply this product by revolutions per minute, then divide final product by constant 2,750, the quotient will be the horse power. Example: Belt 10 inches×36 diameter of pulley=360×200 revolutions=72,000÷2,750 constant=26.5, horse power required.

To Find Diameter of Driven Pulley Required when horse power and width of belt are given: Multiply the horse power by constant 2,750, now multiply revolutions of pulley by width of belt, then divide the first product by the latter, the quotient will be the diameter wanted. Example: Horse power 28×2, 750=77,000; revolutions 200×10=2,000; 77,000 ÷2,000=38.5, diameter wanted.

To Find the Size of Driving Pulley, multiply the diameter of driven by revolutions it should make, and divide the product by revolutions of driver. Example: Diameter of driven, 12 inches; revolutions, 240; revolutions of driver, 160; then 12×240=2,880÷160=18, diameter of driver wanted.

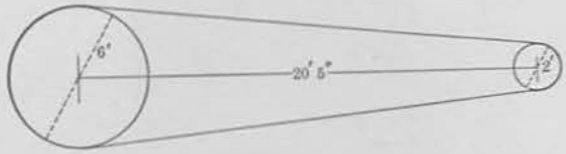
To Find the Size of Driven Pulley, multiply diameter of driver by its revolutions, and divide the product by revolutions of driven. Example: Diameter of driver, 18; revolutions, 160; revolutions of driven, 240; then 18×160=2,880÷240=12, diameter of driven wanted.

To Find the Number of Revolutions of Driven, multiply diameter of driver by its revolutions, and divide product by diameter of driven. Example: Diameter of driver, 18; revolutions, 160; diameter of driven, 12 inches; then 18×160=2,880÷12=240, revolutions of driven wanted.

To Find the Horse Power of a Driving Pulley, multiply the circumference of pulley by the revolutions, and this product by width of belt, and divide final product by 600. Example: Circumference of pulley, 56.55; revolutions, 160; width of belt, 6 inches; then 56.55×160=9,048×6=54,288÷600=9.04, horser power of pulley wanted.

Rules for Measuring Belts

For Finding Length of Straight Belts



Rule 1

A.—Multiply one-half the sum of the diameters of the pulleys by $3\frac{1}{7}$.

B.—Add to above twice the distance between centers.

C.—If one pulley is much larger than the other, it is necessary to add to the above a sum varying from one to ten or twelve inches, or more, and obtained by the following method: Square the difference in the diameters in pulleys in inches and divide by four times the distance between centers in inches.

Example

Large pulley, 58".
Small pulley, 12".
Distance between centers, 10' =120".
To find A—58"+12" =70"; 70"×½ =35"; 35"×$3\frac{1}{7}$ = 110".
To find B—10' =120"; 2×120" =240".
To find C—58"—12" =46".
46" squared =2116".
4 times distance between centers is 4×120" =480".
2116" divided by 480 =5" approximately.
Total length A+B+C =110"+240"+5" =29' 7", answer.

For Finding Length of Cross Belts
Rule 2

A.—Multiply one-half the sum of the diameters of the pulleys by $3\frac{1}{7}$.

B.—Square one-half the sum of the diameters of the pulleys. Square the distance between centers. Add these two squares and take the square root. Multiply this by 2 and add to the result found in paragraph A.

Example

Large pulley, 58".
Small pulley, 12".
Distance between centers, 10' =120".
To find A—Same as Rule 1 =110".
To find B—Half the sum of the diameters of the pulleys =35".
Square 35" =1225".
Square distance between centers (120") =14400".
Add 1225" and 14400" =15625".
The square root of 15625" =125".
Twice 125" =250".
A+B =110"+250" =360" =30', answer.

Rule for Measuring Belts in the Roll

Add to the diameter of the roll in inches the diameter of the hole in the center of the roll. Multiply this sum by the number of coils in the roll, and multiply this product by 1.32. The three figures on the left represent number of feet in roll.

Example

Roll of 5-inch single leather belt measures $37\frac{5}{8}$ inches in diameter; hole, $4\frac{5}{8}$ inches in diameter; number of coils in roll, 84:

$37\frac{5}{8}$+$4\frac{5}{8}$ =$42\frac{1}{4}$×84 =3,549×1.32 =468,468; or (taking the first three figures on the left) equals $468\frac{1}{2}$ feet.

Length of roll by actual measurement, 469 feet.

Rules for Piecing out Belts

In order to calculate the changed length of belt when different size pulley is put on in place of one removed, take out of the belt, or put in one and a half times the difference of the diameter of the pulleys.

Example: Take off a 20-inch pulley and put on a 24-inch —20-inch×$1\frac{1}{2}$-inch =6-inch of a new belt to the existing one.

Wing Leather Belting

This illustration shows the portion of hide from which the leather which is used in the manufacture of our leather belting, clutch facings, etc. is cut.

Particular attention is given in the selection, classification and sorting of the leather butts which go into the following brands, to insure a uniform quality and weight.

Leather Belting in Rolls

J. T. Wing's Extra Quality Brand

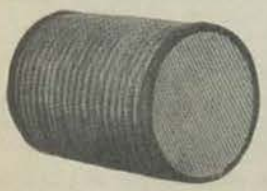
Made in all plies and widths from strictly center stock oak tanned leather. Recommended generally where heavy first quality belting is required to meet the conditions of heavy loads encountered in machine belts in general machine shops, metal working plants, textile plants, furniture factories, wood-working plants and particularly adapted for main drives.

J. T. Wing's Extra Quality Waterproof Brand

Made in all plies and widths from strictly first quality center stock oak tanned leather. It is constructed with waterproof cement and guaranteed not to open in the laps when exposed to water, steam or any other form of moisture.

This belt is particularly adapted for heavy duty as in paper mills, saw mills, chemical plants, wood working plants, laundries and all places exposed to atmospheric conditions.

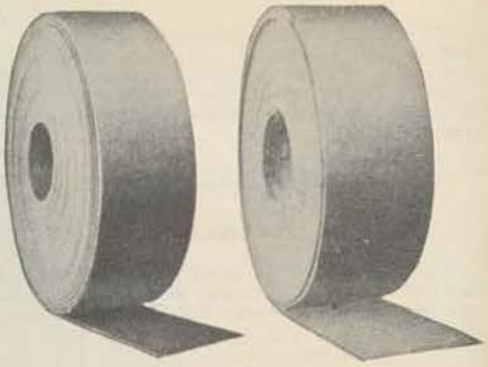
Solid Round Belting



A strong, pliable, smooth-running solid round leather belt made from butt portion of steer-hides and tanned by long-time oak bark process.

This is a long-wearing belt, with a minimum of stretch, that will give satisfactory service on any ordinary round belt drive. Furnished in 1/4, 3/16, 1/4, 5/16, 3/8, and 1/2-inch sizes. Prices upon application.

Oak Tanned Leather Belting



Single Double

Leather Belt List

Width In.	Per Foot Single	Double	Width In.	Per Foot Single	Double
1/2	$.12	$.24	6	$1.44	$2.88
3/4	.18	.36	7	1.68	3.36
1	.24	.48	8	1.92	3.84
1 1/4	.30	.60	9	2.16	4.32
1 1/2	.36	.72	10	2.40	4.80
1 3/4	.42	.84	12	2.88	5.76
2	.48	.96	14	3.36	6.72
2 1/4	.54	1.08	16	3.84	7.68
2 1/2	.60	1.20	18	4.32	8.64
2 3/4	.66	1.32	20	4.80	9.60
3	.72	1.44	22	5.28	10.56
3 1/2	.84	1.68	24	5.76	11.52
4	.96	1.92	26	6.24	12.48
4 1/2	1.08	2.16	28	6.72	13.44
5	1.20	2.40	30	7.20	14.40
5 1/2	1.32	2.64	32	7.68	15.36

Intermediate sizes take next highest list. Subject to discount.

Lace Leather in Sides

Carefully selected, closely trimmed. This leather is pliable and tough and is thoroughly stretched during process of manufacture.

Furnished in regular tanned and chrome tanned.

Prices upon application.

Hand Cut Lacings

These lacings supplied in regular tanned in one pound boxes and chrome tanned in boxes of 100 feet.

Sizes 1/4", 5/16", 3/8", 7/16", 1/2".

Regular Belt Cement

This Cement is used for cementing the laps of leather belts and is mixed with water and then heated and applied when hot.

It sets quickly and can be used on all belts except where moisture is likely to be present, when Waterproof Cement should be used.

GUTTA PERCHA RUBBER BELTING

DURAFLEX, Square Edge Type

Made in a square edge construction from a special cotton, woven to Gutta Percha specification into a hard duck which provides a secure foundation for a belt which has the strength for transmitting the utmost capacity of power with minimum stretch. This hard duck has the strength and firmness to hold fasteners and lacings. Gutta Percha perfected the friction which holds the plies of this hard duck together and gives flexibility equal to a belt made from soft duck. The edges are sealed with waterproof gum.

Made in rolls or endless (6 ft. extra charged for making endless) from 33-34 oz. silver hard duck with a friction pull of 26-28 lbs. per inch.

Full Rolls of approximately 500 feet...extra 10%.
Half " " " 250 " ... " 5%.

FLEXECON, Square Edge Type

Made in a square edge construction of the same type of hard duck as used in our Duraflex grade but of lighter weight.

Made in rolls or endless (6 ft. extra charged for making endless) from 30 oz. silver hard duck with a friction pull of 23-25 lbs. per inch.

Supplied **only** in widths 14 inches and under.

Full Rolls of approximately 500 feet...extra 10%.
Half " " " 250 " ... " 5%.

P.M.S., Folded Edge Construction

P.M.S. (Paper Mill Special) was especially designed to meet the severe service encountered in paper mills and the cone drives in particular. The pulley side is treated with the "Adheso Process" which increases the gripping power. Identified with a red ribbon and is found on hard drives and heavy transmission work in all classes of industry.

Made in rolls or endless (6 ft. extra charged for making endless) from 32 oz. duck with a friction pull of 23-25 lbs. per inch.

Full Rolls of approximately 500 feet...extra 10%.
Half " " " 250 " ... " 5%.

TROJAN, Folded Edge Construction

A moderate priced belt made with a first quality duck and red friction. Very reliable for ordinary use.

Made in rolls or endless (6 ft. extra charged for making endless) from 32 oz. duck with a friction pull of 16-18 lbs. per inch.

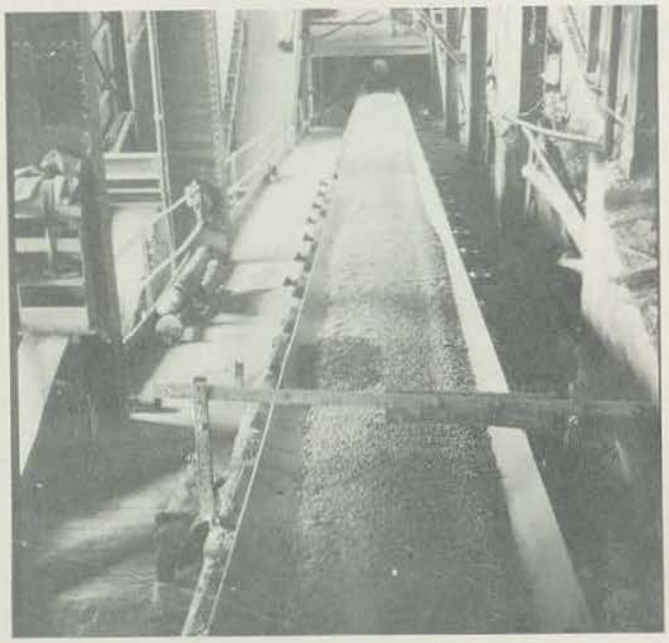
Supplied **only** in widths 15 inches and under.

Full Rolls of approximately 500 feet...extra 10%.
Half " " " 250 " ... " 5%.

RUBBER BELTING—LIST PRICES

Inch	2-ply	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply
1	$0.18	$0.20	$0.24	.....	.....	.....	.....
1¼	.23	.26	.30	.....	.....	.....	.....
1½	.27	.31	.36	$0.45	.....	.....	.....
1¾	.32	.36	.42	.53	.....	.....	.....
2	.34	.39	.46	.58	$0.69	.....	.....
2½	.42	.48	.56	.70	.84	.....	.....
3	.48	.55	.65	.81	.98	.....	.....
3½	.57	.65	.76	.95	1.14	.....	.....
4	.61	.70	.82	1.03	1.23	$1.44	.....
4½	.68	.78	.92	1.15	1.38	1.61	.....
5	.76	.87	1.02	1.28	1.53	1.79	$2.04
6	.91	1.04	1.22	1.53	1.83	2.14	2.44
7	1.07	1.22	1.43	1.79	2.15	2.50	2.86
8	1.15	1.31	1.54	1.93	2.31	2.70	3.08
9	1.29	1.47	1.73	2.16	2.60	3.03	3.46
10	1.43	1.63	1.92	2.40	2.88	3.36	3.84
11	1.57	1.79	2.11	2.64	3.17	3.69	4.22
12	1.72	1.96	2.30	2.88	3.45	4.03	4.60
13	1.86	2.13	2.50	3.13	3.75	4.38	5.00
14	2.00	2.29	2.69	3.36	4.04	4.71	5.38
15	2.14	2.45	2.88	3.60	4.32	5.04	5.76
16	2.29	2.62	3.08	3.86	4.62	5.40	6.16
18	2.57	2.94	3.46	4.32	5.20	6.06	6.92
20	2.85	3.26	3.84	4.80	5.76	6.72	7.68
22	3.14	3.59	4.22	5.28	6.34	7.38	8.44
24	3.42	3.91	4.60	5.76	6.90	8.06	9.20
26	3.71	4.26	5.00	6.26	7.50	8.76	10.00
28	4.00	4.57	5.38	6.72	8.08	9.42	10.76
30	4.29	4.90	5.76	7.20	8.64	10.08	11.52
32	4.59	5.25	6.16	7.72	9.24	10.80	12.32
34	4.87	5.56	6.54	8.18	9.82	11.46	13.08
36	5.14	5.87	6.92	8.64	10.40	12.12	13.84
38	5.43	6.21	7.30	9.13	10.96	12.78	14.60
40	5.72	6.54	7.68	9.60	11.52	13.44	15.36
42	6.00	6.86	8.06	10.08	12.10	14.10	16.12
44	6.28	7.18	8.44	10.55	12.68	14.76	16.88
46	6.57	7.51	8.82	11.03	13.24	15.44	17.64
48	6.85	7.83	9.20	11.50	13.80	16.12	18.40
50	.....	.....	9.60	12.00	14.40	16.82	19.20
52	.....	.....	10.00	12.50	15.00	17.52	20.00
54	.....	.....	10.38	12.98	15.58	18.18	20.76
56	.....	.....	10.76	13.45	16.16	18.84	21.52
58	.....	.....	11.14	13.93	16.72	19.50	22.28
60	.....	.....	11.52	14.40	17.28	20.16	23.04

GUTTA PERCHA CONVEYOR BELTING



The Economical Way to Handle Material

Conveyor and Ore Elevator Belting

Gutta Percha belting has solved many of the most difficult problems of conveying materials. Each brand is designed for a specific purpose and the success of Gutta Percha belts is due to Engineering ability to supply the right belt for each installation. Gutta Percha Engineers will give their recommendation for your conveying and elevating problem. Send all details.

Superex Conveyor Belt. The belt is thoroughly bonded throughout, having a cover which resists abrasion and cutting; a carcass extremely flexible, producing a belt which troughs perfectly and is ideal for tripper pulleys. Made from 28, 32 or 36oz. duck with a friction pull of 23 to 25 lbs. per inch and a cover with a tensile strength of 3,500 to 4,000 lbs. per sq. inch.

Efficiency Conveyor Belt: A heavy duty construction for general service. With a wear resisting cover securely bonded to the carcass. Made from 28, 32 or 36 oz. duck, with a friction pull of 16 to 18 lbs. per inch and a cover with a tensile strength of 2,500 to 3,000 lbs. per square inch.

Victor Conveyor Belt

A reliable belt at a low cost, for handling materials which are moderately abrasive under conditions not too severe. Very suitable for sand, wood chips, pulp, small gravel, etc.

Made from 28 or 32 oz. duck with a friction pull of 12 to 14 lbs. per inch, and a cover with a tensile strength of 800 to 1,000 lbs. per square inch.

Superex Hot Rock Belt

Made with special covers of proven compounds to handle hot lumps or hot fines.

Each type of hot material presents a different problem. Send all particulars including character and temperature of materials to be handled, including sizes of lumps and loading conditions.

Cannery Conveyor Belt

For conveying food products, recommended with a white rubber cover specially compounded so as not to contaminate food, fruit, vegetables or meats, and is resistant to fruit acids and grease. A white belt is sanitary and easily washed. Supplied in Superex and Efficiency quality and at the same price.

GUTTA PERCHA RUBBER HOSE

GARDEN HOSE

Garden Hose Construction

BRAIDED CORD—Corrugated. This braided cord hose is made for lawn, small greenhouse and light industrial use. Has a corrugated cover to withstand dragging around and is little affected by direct sunlight. Very flexible and has no tendency to kink. Made in 2-ply, either red or black, in the "Multiped" brand, and 1-ply red or black in the "Bonacord" brand. Supplied on reels of approximately 500 ft. or paper wrapped in 50-ft. coils.

WRAPPED PLY. Made of strong frictioned sheeting in 3 and 4-ply. A moderate priced hose, suitable for continuous watering or sprinkling. Supplied in 50-ft. lengths in paper-wrapped coils.

ALL RUBBER—Corrugated. A low-priced, serviceable hose, without fabric reinforcement.

Air Drill Hose

Duraflex—Cord Construction. Made from long staple tire cord, each cord protected by heavy rubber insulation, cannot chafe and weaken from constant flexing.

The cover is carbon black tire tread stock, adapted to hose use. Will resist cutting and abrasion in mines, quarries, etc. The tube is oil resisting.

Light in weight, extremely flexible for easy handling. Identified by the yellow ribbon.

50-ft. lengths. 10% extra charged for short lengths.

Note: Not made less than four plies.

Also supplied in Wrapped Duck Construction "Efficiency" and "Lion" Brands.

WATER HOSE

Duraflex—Wrapped Cord Construction

A new Gutta Percha development, made of special cord (tire type), light in weight, strong and extremely pliable. Is practically kinkproof. Made with a cover to resist oil and abrasion.

It is particularly recommended for paper mills, mines and large contractors, where water is conducted under pressure.

Identified by the red spiral ribbon.

50-ft. lengths. 10% extra charged for short lengths.

Efficiency—Wrapped Duck Construction

Made with a seamless rubber tube and strong duck. Made with an oil and abrasion resisting cover for paper mill and mine work.

50-ft. lengths. 10% extra charged for short lengths.

Lion—Wrapped Duck Construction

A popular hose for general service.

50-ft. lengths. 10% extra charged for short lengths.

Pneumatic Tool Hose

For conducting air to riveting hammers, air hoists, drills, etc. Used in factories, foundries, machine shops and on steel construction. Made with oil-resisting and non-porous tube and an abrasion-resisting cover.

Duraflex—Wrapped Cord Construction

This new type of cord construction gives less weight, greater flexibility and adequate strength to meet all pressures. The tube is oil resisting. A tough cover protects the hose against severe outside abrasion. Identified with the green ribbon.

50-ft. lengths. 10% extra charged for short lengths.

Efficiency—Wrapped Duck Construction

A high-grade, long-wearing hose.

50-ft. lengths. 10% extra charged for short lengths.

Lion—Wrapped Duck Construction

A lighter hose of exceptional quality for the price.

50-ft. lengths. 10% extra charged for short lengths.

GUTTA PERCHA RUBBER HOSE

STEAM HOSE

Resisto—Wrapped Duck and Wire Construction

This super hose is built with a steam-resisting tube, plies of insulated duck and reinforced with braided steel wire. A ply of leno weave breaker fabric bonds a heat and grease-proof cover to the carcass. Recommended for oil refineries, still cleaning, steam hammers, pile driving and heavy duty work, where severe and continuous pressures are encountered.

50-ft. lengths. 10% extra charged for short lengths.

Maltese Cross—Wrapped Duck Construction

A first quality hose of heat-resisting construction specially designed for the heaviest and most trying service.

50-ft. lengths. 10% extra charged for short lengths.

Lion—Wrapped Duck Construction

This has long been considered our standard grade of steam hose. A moderately priced article for ordinary industrial work.

50-ft. lengths. 10% extra charged for short lengths.

SUCTION HOSE

Smooth Bore

Rough Bore

There are two types of suction hose commonly used in Pumping Service, namely, smooth bore and rough bore.

Smooth Bore hose has round wire embedded in the wall of the hose, permitting a smooth tube and should be used on all heavy duty work or where water contains acid or grit. The round coiled steel wire gives good flexibility and unusual strength.

Rough Bore hose has a flat galvanized wire built flush with the surface of the rubber tube of the hose and is recommended for general work and should not be used for pumping water which contains sand, grit or acid, as the metal wire will not stand the abrasive action of sand, or the corrosion of acid. Smooth bore type is designed for such work.

FIRE HOSE

"Guttaperch"—Supplied in 50-ft. lengths only.

Guttaperch hose is made in strict conformity with Factory Mutuals specifications, Boston, which refer only to the 2½" size. Smaller sizes of same quality are furnished, not as "Underwriter Hose", but to supply popular demand for a similarly high-grade hose in these sizes.

Guardian (labelled)—Supplied in 50-ft. lengths only.

Supplied with treated jacket if required at no extra charge. **Guarantee**—No time or pressure guarantee to be given. The only guarantee on Underwriters Fire Hose is the initial test pressure of 300 lbs., taken at the time of delivery of the hose.

Mill—Cotton Rubber Lined

"Vulcan"—Treated. Treated to resist mildew and rot and lined with a high-grade smooth tube. Recommended for general protection where Underwriter's label is not required. Supplied in 50-ft. lengths only.

Trojan—Mill Fire Hose. Supplied in 50-ft. lengths only.

Linen Hose—Unlined

"Crown" "Empire" and "Victor" Brands

25-ft. lengths or multiples thereof.

Oil, Gasoline and Solvent Hose

In addition to the Oil Hose made with special compounded rubber, Gutta Percha has developed compounds from synthetic rubbers which are unaffected by gasoline, oil, other petroleum derivatives or commercial solvents. Compounded rubber tubes will eventually swell and disintegrate thereby ruining the hose or cause trouble by clogging oil burners, carburetors or other mechanisms where these fluids are used.

For most oil and solvent services we recommend a synthetic tube and would appreciate the opportunity to advise you on your oil, gasoline or solvent handling problems.

Special Hose & Tubing

Brewers Hose and Beer Tubing—especially made to meet the requirements of the Industry.

Welding Hose—Wrapped Duck Heavy Construction.

Made in black or green for oxygen—red cover for acetylene.

Abattoir and Creamery Hose—Tube stands low pressure steam, hot or cold water. The cover resists animal fats and will stand abrasion on concrete floors.

Abattoir—Red Cover. Creamery—White Cover. Made with straight tube or tapered nozzle as requested.

Tubing—Cloth Insertion. Black or green covers. Red or black tube furnished to order, no extra charge.

Tubing—All Rubber. White or red all rubber tubing, plain or corrugated.

GUTTA PERCHA HOSE

HOSE CONSTRUCTIONS

Wrapped Duck

Built on steel mandrels insuring uniform tube diameter. Over the tube is wrapped the desired number of plies of strong duck made to G.P. Specifications adequately frictioned and protected with a suitable rubber cover. This construction produces a well balanced hose for durability and long service. Made in 50-ft. lengths.

Braided

In this construction special twisted cords are braided around the tube insulated with rubber and braided again to make up the number of plies. This makes a flexible hose that can be obtained in long lengths up to 500 feet.

CORD

This type of construction is one of the latest hose developments perfected by Gutta Percha. Is made on a mandrel which insures a uniform tube. The cords are a similar construction to those used on high grade cord tires and has the advantage over the braided type in that each cord is thoroughly insulated by rubber. This construction gives a light flexible hose for heavy work and is particularly suited for air drill, pneumatic tool and water service. Made in 50-ft. lengths.

Woven Jacket

Woven Jacket Hose is made on a circular loom with the filler threads running circumferentially and the warp thread longitudinally. This seamless cotton tube can then be lined with rubber and is the usual construction for fire hose.

HOSE LIST PRICES

In cases where the net prices are not given for sizes or type of industrial hose the price may be obtained by using the list prices below and applying the discount given to the particular type of hose.

Water Hose

Internal Diameter	2 Ply per ft.	3 Ply per ft.	4 Ply per ft.	5 Ply per ft.	6 Ply per ft.
½ inch	$0.20	$0.25	$0.30	$0.37	$0.45
⅝ "	.23	.28	.34	.42	.50
¾ "	.25	.30	.37	.46	.55
1 "	.33	.40	.50	.62	.75
1¼ "	.42	.50	.62	.77	.93
1½ "	.50	.60	.75	.93	1.12
1¾ "	.58	.70	.87	1.08	1.30
2 "	.66	.80	1.00	1.25	1.50
2¼ "	.75	.90	1.12	1.40	1.68
2½ "	.83	1.00	1.25	1.56	1.87
2¾ "	.92	1.10	1.37	1.71	2.05
3 "	.99	1.20	1.50	1.87	2.25
3½ "	1.15	1.40	1.75	2.18	2.62
4 "	1.32	1.60	2.00	2.50	3.00
5 "	1.65	2.00	2.50	3.12	3.75
6 "	1.98	2.40	3.00	3.75	4.50
7 "	2.31	2.80	3.50	4.38	5.25
8 "	2.64	3.20	4.00	5.00	6.00
9 "	2.97	3.60	4.50	5.62	6.75
10 "	3.33	4.00	5.00	6.25	7.50

Steam Hose

Also for Abattoir, Acid, Air Drill, Air Brake, Brewers', Divers', Gasoline, Hot Water, Oil, Sand Blast, Signal and Vinegar Hose.

Internal Diameter	3 Ply per ft.	4 Ply per ft.	5 Ply per ft.	6 Ply per ft.	7 Ply per ft.	8 Ply per ft.
¼ inch	$0.35	$0.38	......	......	......	......
⅜ "	.38	.47	......	......	......	......
½ "	.47	.56	$0.70	$0.84	$0.98	$1.12
⅝ "	.52	.64	.79	.95	1.11	1.27
¾ "	.57	.71	.87	1.05	1.23	1.41
1 "	.70	.87	1.07	1.28	1.50	1.70
1¼ "	.85	1.04	1.30	1.56	1.82	2.08
1½ "	1.02	1.25	1.56	1.87	2.18	2.50
1¾ "	1.18	1.45	1.81	2.17	2.53	2.90
2 "	1.34	1.66	2.07	2.49	2.90	3.32
2¼ "	1.50	1.87	2.33	2.80	3.27	3.74
2½ "	1.66	2.08	2.60	3.12	3.64	4.16
3 "	2.00	2.80	3.50	4.20	4.90	5.60
3½ "	2.33	3.27	4.08	4.90	5.72	6.54
4 "	2.67	3.73	4.66	5.60	6.53	7.47
4½ "	3.00	4.20	5.25	6.30	7.35	8.40
5 "	3.33	4.67	5.83	7.00	8.17	9.34
6 "	4.00	5.60	7.00	8.40	9.80	11.20

Hard Rubber Suction Hose

Int. Dia.	Per ft.	Int. Dia.	Per ft.
¾ inch	$0.65	1½ inch	$1.13
1 "	.75	1¾ "	1.31
1¼ "	.93		

Pneumatic Tool Hose

Int. Dia.	Per ft.	Int. Dia.	Per ft.
¼ inch	$0.30	⅝ inch	$0.53
⅜ "	.36	¾ "	.60
½ "	.45	1 "	.80
9/16 "	.53		

Mill Fire Hose

Cotton Rubber Lined

Int. Dia.	Per ft.	Int. Dia.	Per ft.
1 inch	$0.40	2 inch	$0.65
1¼ "	.45	2½ "	.80
1½ "	.50		

Winding Hose

Wire and Marline Winding

Int. Dia.	3 Ply per ft.	4 Ply per ft.	5 Ply per ft.	6 Ply per ft.	7 Ply per ft.	8 Ply per ft.
¼ inch	......	$0.08	......	......	......	......
⅜ "	......	.09	......	......	......	......
½ "	$0.09	.10	$0.11	$0.12	$0.13	$0.14
⅝ "	.10	.11	.12	.13	.14	.15
¾ "	.11	.12	.13	.14	.15	.16
1 "	.13	.14	.15	.16	.17	.18
1¼ "	.15	.16	.17	.18	.19	.20
1½ "	.18	.19	.20	.21	.22	.23
1¾ "	.20	.21	.22	.23	.24	.25
2 "	.23	.24	.25	.26	.27	.28
2¼ "	.25	.26	.27	.28	.29	.30
2½ "	.27	.28	.29	.30	.31	.32

GUTTA PERCHA AGRICULTURAL PRODUCTS

Thoroughbred Quality GUTTA PERCHA HOSE

For long wear and efficient service, choose Gutta Percha Hose for either suction or discharge work. We will gladly assist you in selecting the best type for each individual need.

GP SUCTION HOSE

GP Yellowstone Brand Suction Hose with heavy-woven cotton cover (painted) giving extra protection and strength thus adding to the life of the hose. Top grade throughout.

GP Cable Brand. The same construction as Yellowstone without the extra cotton jacket. Rubber covered, strong and serviceable.

King—Hard Rubber Suction Hose especially made for use in sizes not larger than 1¾".

"RED RIBBON" Endless Thresher Belts

When you install a 32 oz. friction surface, "Red Ribbon" endless driving belt, you are sure of steady reliable service under the toughest conditions.

Long wear is certain and slippage is reduced to a minimum by the special "Adheso" process (registered by Gutta Percha). The extra grip this process gives greatly increases the efficiency of the belt enabling it to deliver maximum power.

You can get "Red Ribbon" Thresher Belts in a variety of lengths and widths, in 4 or 5 ply, or made up to special specifications.

MUCH MORE GRIP

GP BELTING Cut from rolls to any length

We can give you a splendid choice of belts for power engines, separators, feed grinders, saws or any other place where a belt drive can be used.

We will gladly advise you as to the best type for any individual job, and can supply any length of belt required.

Other GP Belting: "Duraflex", "P.M.S." and "AJAX" provides a complete choice for every purse and purpose.

For pulling power and grip these thoroughbred beltings made by Gutta Percha are unequalled. Gutta Percha & Rubber, Limited, is a 100 per cent Canadian company.

GUTTA PERCHA TIRES and AUTO ACCESSORIES

Built for passenger or Bus-Truck Service, Gutta Percha tires are sturdy and powerful, designed to give you perfect grip and easy riding. Made in all sizes and types, there is a Gutta Percha thoroughbred to suit every purse and purpose.

Repair Kits

No. 0 Kit—Contains 24 sq. in. Red "Vulkapatch" material, ¾ x 3 tube of special solvent and cleaner.

No. 1 Kit—Contains 36 sq. in. Red "Vulkapatch" material, ¾ x 4 tube of special solvent and cleaner. Black supplied if desired.

Packed in lots of 12 tins in a 3 colour counter display carton.

No. 2 Kit—Contains 24 sq. in. Red "Vulkapatch" material, 12 No. 1 circular bevelled Vulkapatches, ¾ x 4 tube of special solvent and cleaner.

Commercial Repair Kit

A larger Kit for fleet owners, etc., who do their own repairing.

Contents as follows, packed in attractive 3 colour cans:
150 sq. in. "Vulkapatch" Cold Tube Patching Material.
25 No. 1 Bevelled Vulkapatches, 1⅛" cir.
15 No. 2 Bevelled Vulkapatches, 1½", sq.
10 No. 3 Bevelled Vulkapatches, 2¼"x1⅛", rectangular.
10 No. 4 Bevelled Vulkapatches, 2" x 1½" rectangular.
¼ pint (appr.) can Special Solvent and Cleaner, with brush attached to lid of can.

Air Line Hose

A strongly constructed ply hose made especially to withstand severe service in garages. Made in ¼" and ⅝", and supplied with or without Schrader Air Chuck and Couplings. Packed in cartons containing 25-foot lengths of a size. Also available in 50 foot lengths.

Radiator Hose

3-ply construction

Distinctive red colour, flexible and compounded to withstand the severe effects of hot water, steam and anti-freeze solutions.

Available in the following sizes in three foot lengths.

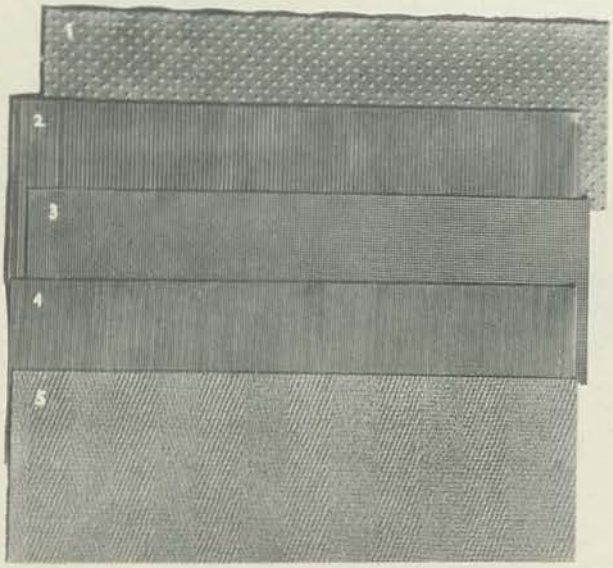
1"	1⅜"	1⅞"	2½"
1⅛"	1½"	2"	2¾"
1¼"	1⅝"	2⅛"	3"
1⅜"	1¾"	2¼"	

For many other lines of G. P. Auto Accessories see the Special Catalogue put out by Gutta Percha & Rubber, Limited.

GUTTA PERCHA PRODUCTS

GP Rubber Matting

Actual photographs of sample strips, showing a variety of patterns. These types of matting come in rolls and are obtainable in any reasonable length.



No. 1 DOT OR PEBBLED PATTERN. A very heavy matting, particularly suited to exceptionally heavy traffic. Used principally on railway coach platforms and steps, showing the suitability of this type for really hard wear. Standard width 36", in black only.

No. 2 RUNNER PATTERN. An attractive bar pattern, with fancy border, particularly popular for use in halls, offices, stores, public buildings, corridors, vestibules, etc. Very neat and smart, wears excellently. Supplied in plain black or brown colors, also in mottled colors as follows:—No. 3, green mottled field, plain green border; No. 5, blue mottled field, plain blue border; No. 8, beige mottled field, plain brown border. 27" or 36" wide, 5/32" thick.

No. 3 PYRAMID PATTERN—No. 4 CORRUGATED PATTERN. Two further choices of design for general purposes where runner matting may be used. PYRAMID is an all-over design, black only, standard 36" wide and ⅛" thick. CORRUGATED is a V-shaped pattern, all-over design, in black or brown. Standard width 36". Can be supplied in wider widths up to 54" if desired, and in thicknesses 3/32" and upwards. White and other colors made to order for special quantities.

No. 5 COCO RUBBERTEX. A unique pattern in a class by itself. This pattern is a remarkable rubber imitation of the original Coco Matting. It can be used wherever the old fashioned type could be used, is very long wearing. Some splendid installations have been made in swimming pools, schools, gymnasiums, basement billiard rooms, etc. It is also particularly suited to verandahs and sunporches. Standard colors are brown and beige—other colors made to order. 24", 30" and 36" wide and ⅛" thick.

For complete line of Gutta Percha Mats and Matting see the special G.P. Matting Catalogue.

Wing's "REDWING" Packing

A special all-rubber red sheet packing, ideal for hot or cold water joints and low pressure steam joints. Stocked in rolls 36" wide and of various thickness.

Leader C.I. Packing

A black rubber sheet packing reinforced with one ply cotton sheeting. Supplied in various thicknesses from 1/32" up. Regularly stocked in rolls of 36" width.

Valve Discs—Radium

These discs fit the following globes—angle, regulator, header, radiator and throttle valves and similar equipment built with renewable seats. They work satisfactorily under conditions such as saturated steam, hot or cold water, oil, solvent, ammonia, or brine service. Specify Round or D.D. Hole.

Other Rubber Products

We believe there is no other material that lends itself to new uses in industry with such beneficial results as rubber. Rubber properly compounded has remarkable properties such as resilience, toughness, water and air proof, elastic, can be made odourless and tasteless, can be made to withstand most acids and alkalies and with the new synthetic rubber, articles can be made impervious to animal, vegetable and mineral oils.

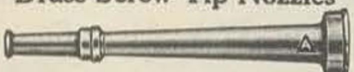
Gutta Percha is well equipped to meet industry's needs for existing rubber goods and maintains a staff of trained engineers to adapt rubber products to new uses to save you money or improve your product.

Plain Brass Hose Nozzles

This hose nozzle is carefully designed, putting the strength in the right place and improving the appearance. The weight is not reduced to meet modern competition, but the same standard of weight and finish is maintained, at all times.

Size Inches	Length Inches	Per Dozen	Size Inches	Length Inches	Per Dozen	Size Inches	Length Inches	Per Dozen
¾	3	4.00	1¼	12	18.00	2½	7½	37.40
½	6	7.00	1½	5¾	18.00	2½	12	55.00
1	4	5.00	1½	10	20.00	2½	15	65.00
1	8	9.00	1½	12	22.00	2½	20	90.00
1¼	4¾	12.00	2	6¾	26.00	..	..	....
1¼	10	16.00	2	12	34.00	..	..	....

Brass Screw Tip Nozzles



These nozzles are substantially proportioned, beautifully finished. Weight and quality have not been sacrificed to build down to a price.

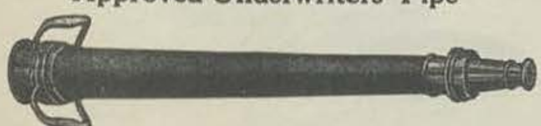
Size Inches	Length Inches	Discharge Inches	Per Doz. Hose and Iron Pipe, Thread	Size Inches	Length Inches	Discharge Inches	Per Doz. Hose and Iron Pipe, Thread
¾	6	¼	7.00	2	12	⅝	38.00
¾	7½	¼	8.00	2	15	⅝	45.00
⅝	12	¼	10.00	2½	15	¾	75.00
1	8½	¼	10.00	2½	20	1	96.00
1	12½	¼	12.00	2½	24	1	100.00
1¼	12	⅜	20.00	2½	30	1	144.00
1½	13	½	25.00	..	..	.	.....

Hose Pipes with Cocks

Cast brass. With hose or I. P. T. Threads on tips of ¾ and 1 inch pipes are ⅜ inch Iron Pipe size.

Size In.	Per Doz.	Length In.	Disch. In.	Size In.	Per Doz.	Length In.	Disch. In.
¾	11.00	6¾	¼	1¼	40.00	12	⅜
¾	13.00	8	¼	1½	55.00	12	½
¾	18.00	12	¼	2	80.00	12	⅝
1	15.00	8	¼	2½	155.00	15	¾
1	20.00	12	¼	...	.....	..	..

Approved Underwriters Pipe



Screw tip, swivel handle, marlin wound, painted red Approved by Associated Factory Mutual Fire Insurance Companies. 2½x30-inch .... **Each** 20.00

Garden Hose Nozzles

This nozzle is solidly made of fine rod brass. The barrel or sleeve tapers to the heavily beaded end, making an attractive nozzle. Because it is made of heavy rod brass it is serviceable and durable.

It is made in ¾-inch hose thread only.
Price... .... Each **.65**

Hose Valves

Chicago Pattern

Semi-finished trimmings rough body, leather disc and japanned iron T handle.

Japanned iron wheel handle furnished on request at no extra charge.

Rubber disc may be substituted if specified.

Inlet thread tapered iron pipe thread, outlet should be specified.

Size...In.	1	1¼	1½	2	2½
Price..Ea.	**3.15**	**3.70**	**4.75**	**7.00**	**8.50**

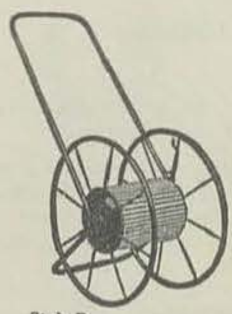
Standpipe Siamese

Fig. No. 270

One of many types that can be furnished, write us for information. Figure 270 as illustrated is a brass polished Wall Type Siamese with escutcheon. Complete with plugs and chains.

Size 2½x2½x4 inches..................Each **38.00**
Size 2½x2½x6 inches..................Each **50.00**

Wirt & Knox Hose Reels



Style B

Victor

Victor Hose Reels

An all metal reel, channel frame, heavy sheet steel drum 9 inches in diameter, solid steel arms; capacity, 100 feet of ⅝-inch rubber hose. Weight, 12½ pounds.
Price..each **$2.25**

Style B Tubular All Metal Hose Reels

Nos. 10 and 20 have corrugated galvanized iron drums; Nos. 30, 35 and 40 have open drums.

No. Reel	Hght. Reel In.	Wt. Lbs.	Capacity, Feet — Rubber Hose — Diam., In. ⅝ — No. of Plies 3	1 — 4	1¼ — 4	Cotton Rubber Lined Hose — Diam., In. 1¼	1½	2	Price Each
10	21	15	100	50	...	...	...	...	**$4.35**
20	24	17	150	75	...	...	...	...	**5.00**
30	29	34	400	150	100	200	150	100	**7.40**
35	32	50	600	200	150	350	250	200	**13.60**
40	34	66	800	300	250	500	400	300	**28.35**

Hose Nipples

Male

Furnished hose thread one end, taper iron pipe thread the other end, unless otherwise ordered.

Male and Female

Size Ins.	Wght. per Doz. Lbs.	Male per Doz.	Male Reducing per Doz.	Male & Female per Doz.	Size Ins.	Wght. per Doz. Lbs.	Male per Doz.	Male Reducing per Doz.	Male & Female per Doz.
½	2¼	3.50	...	3.50	2	12	14.00	17.50	14.00
¾	2½	3.50	4.40	3.50	2½	20	28.00	35.00	28.00
1	3½	5.00	6.25	5.00	3	27	40.00	50.00	40.00
1¼	5½	9.00	11.25	9.00	3½	35	50.00	62.50	50.00
1½	8½	10.00	12.50	10.00	4	45	75.00	93.25	75.00

Hose Bushings

Size Inches	Price per Doz.	Size Inches	Price per Doz.	Size Inches	Price per Doz.
1 x ½	6.50	1½x1¼	12.00	2½x1	22.00
1 x ¾	6.50	2 x ¾	13.00	2½x1¼	23.00
1¼x ¾	8.00	2 x1	14.00	2½x1½	24.00
1¼x1	10.00	2 x1¼	16.00	2½x2	26.00
1½x ¾	11.50	2 x1½	18.00	3 x2	30.00
1½x1	11.50	2½ x ¾	20.00	3 x2½	36.00

Cast Brass Hose Menders

A standard device particularly for larger sizes of hose.

Size....Inches	½	¾	1	1¼	1½	2	2½
Price.Per Doz.	1.00	1.50	2.00	3.00	4.00	7.00	10.00

Brass Hose Clamps

Made of heavy wrought brass, rust-proof clear through.

A hose clamp which is not the proper size cannot give satisfaction. Brass clamps are made in a great variety of sizes to insure a proper fit for any diameter of hose.

Garden Hose Clamps

Size Hose Inches	Ply	I. D. Open Inches	Per Doz.	Size Hose Inches	Ply	I. D. Open Inches	Per Doz.
$\frac{3}{16}$ or ¼	3	$\frac{7}{16}$ or ½	.46	½	3 or 4	$\frac{15}{16}$ or $1\frac{1}{32}$	.46
⅜	2 or 3	⅝ or ¾	.46	¾	2	$1\frac{3}{32}$	.46
½	2	⅞	.46	¾	3 or 4	$1\frac{3}{16}$ or 1¼	.46

Water Hose Clamps

1	2	$1\frac{11}{32}$	2.00	1½	4	$2\frac{1}{16}$	3.00
1	3	$1\frac{7}{16}$	2.00	2	3&4	$2\frac{9}{16}$	4.00
1	4	$1\frac{17}{32}$	2.00	2¼	3&4	2⅞	6.50
1¼	3	$1\frac{21}{32}$	-2.50	2½	3&4	$3\frac{1}{16}$	7.00
1¼	4	$1\frac{13}{16}$	2.50	3	3&4	3¾	10.00
1½	3	$1\frac{15}{16}$	3.00	...	....	....	.....

Steam Hose Clamps

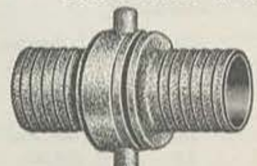
¾	3	$1\frac{7}{16}$	2.00	1½	3&4	$2\frac{7}{32}$	3.50
¾	4	$1\frac{17}{32}$	2.00	1½	5	$2\frac{13}{32}$	4.00
1	3	1⅝	2.50	2	3&4	$2\frac{11}{16}$	5.50
1	4	$1\frac{21}{32}$	2.50	2	5	2⅞	6.50
1¼	3	$1\frac{15}{16}$	3.00	2½	3&4	3¼	8.50
1¼	4	$1\frac{31}{32}$	3.00	2½	5	$3\frac{9}{16}$	9.50

Steam Hose Couplings

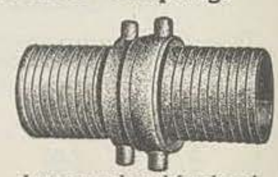
Long shank permits use of more than one clamp on each end. Commonly used on hose for steam, air, gasoline and other purposes where extra precautions must be used to prevent blowing off or leakage. Always furnished iron pipe thread.

Size In.	Price, per Dozen Full Sets	Half Couplings Female	Male	In.	Price, per Dozen Full Sets	Half Couplings Female	Male
¼	15.00	10.00	7.50	1¼	24.00	16.00	12.00
⅜	15.00	10.00	7.50	1½	30.00	20.00	15.00
½	15.00	10.00	7.50	2	42.00	28.00	21.00
¾	15.00	10.00	7.50	2½	72.00	48.00	36.00
1	18.00	12.00	9.00	3	148.00	98.67	74.00

Cast Brass Water Hose Couplings



Lugs on female end only
Per Dozen



Lugs on male and female ends
Per Dozen

Size Ins.	Full Sets	Half Couplings Female	Male	Size Ins.	Full Sets	Half Couplings Female	Male
1¼	10.00	6.67	5.00	3	75.00	50.00	37.50
1½	14.00	9.33	7.00	3½	120.00	80.00	60.00
2	24.00	16.00	12.00	4	150.00	100.00	75.00
2½	48.00	32.00	24.00	5	250.00	167.50	125.00
...	.....	.....	.....	6	500.00	333.33	250.00

Standard Mill Hose Couplings

For cotton rubber lined or unlined linen hose.

Made of high grade, yellow brass material.

Construction, band expanded into the swivel.

Size, Ins.	Cotton Rubber Lined Hose, Per Set	Linen Hose, Per Set	Size, Ins.	Cotton Rubber Lined Hose, Per Set	Linen Hose, Per Set
1	2.75	2.25	2	3.96	3.60
1¼	3.60	2.45	2½	5.00	4.70
1½	5.30	3.60	..	...	...

HOSE WASHERS

Bulk

Rubber for ½, ⅝ and ¾" couplings.

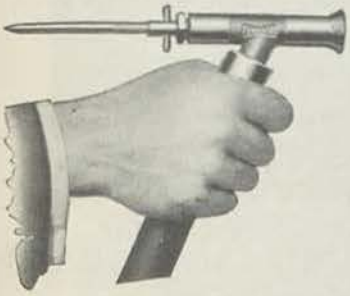
We are prepared to take care of your requirements on welding equipment and supplies.

Complete catalogues and information upon request.

Let us have your inquiries.

PENBERTHY WATER GUNS AND LAWN SPRINKLERS

WATERGUN

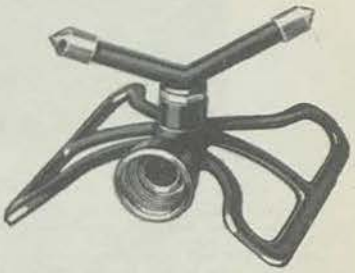


Combined Nozzle and Lawn Sprinkler $1.70 ea.

TWOWAY

Circular and Straight Away Spray $1.40 ea.

SPRAYOL



Whirling Lawn Sprinkler $1.90 ea.

Sherman Portable Spray Heads

Can be used singly with cap on end of hose line, or coupled between short lengths of hose, making a complete sprinkling system. Tosses into the air a misty spray, evenly covering a wide area. Conserves water volume, permitting a large number of heads to be used on normal pressure. Made entirely of brass, nickeled. Mounted on a lacquered steel base. All edges are rounded to prevent injury to turf when drawing the system from one location to another. No adjustments necessary. No moving parts. Nothing to get out of order. Nothing that wears out or has to be replaced.

per Head.....Each .85

LAWN ROLLERS

Electric welded, sheet steel, single drum, painted green. Red painted braces and scraper. Wood handle, round edge on drum to prevent tearing of turf. Easily filled with water or sand. Roller bearings on all numbers except No. 4.

No.	Diam. Ins.	Lgth. Ins.	Empty Wgt.	Filled with wtr.	Each List
4	18	24	82	265	$ 20.00
7	24	24	110	420	23.00
9	24	32	130	565	26.00

LAWN AND GRASS SHEARS

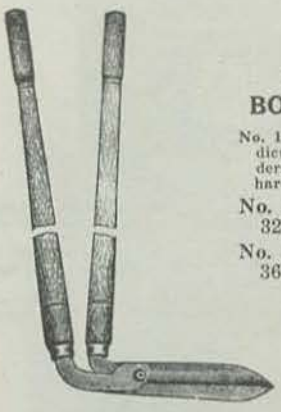
No. 5125—German make. Good grade steel, single bow, bent 5½" cut; length overall 11". Per dozen.....List $11.20

LONG HANDLE SURFACE TRIMMERS

No. 106. With horizontal blades for surface trimming; long handles of selected hardwood; mahoganized finish.

No. 106 x 8" Cut.
32" handles. Ea. list....$4.80

No. 106 x 9" Cut.
36" handles. Ea. list.... 5.30



LONG HANDLE BORDER TRIMMERS

No. 104. With 8 and 9 ins. perpendicular blades for trimming borders; long handles of selected hardwood, mahoganized finish.

No. 104 x 8" Cut.
32" handles. Ea. list....$4.80

No. 104 x 9" Cut.
36" handles. Ea. list.... 5.30

HEDGE SHEARS

Notched Blade

Regular Pattern; Medium Weight.

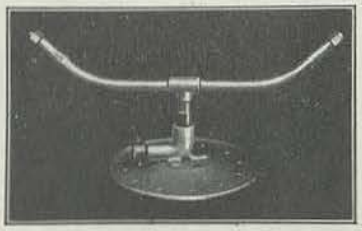
In 8 and 9 ins. blades (from bolt to point); notched blade prevents slipping in cutting heavy hedge branches, bushes, etc.

5392	9" notched blade each list.....	$2.30
5385	8" plain blade each list.....	1.75
5391	9" plain blade each list.....	2.10
5368	8" plain pressed steel blade each list...	1.65

Perfection Sprinklers

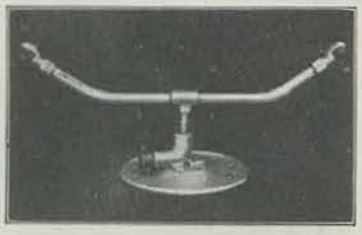
No. HD Jr. . . . . Price $4.20

This Junior H.D. Heavy Duty sprinkler is built of the same high grade, heavy materials as the No. HD, only the head is smaller. It will cover from 15 to 35 ft. circle, operate on almost no pressure, and will outwear a dozen cheap sprinklers. The most sprinkler you ever bought for the low price of $4.20



No. HD . . . . Price $6.30

This is a strictly Heavy Duty sprinkler especially serviceable for Tees. Also for Lawns, cemetery lots, and other medium sized areas. Covers from 20 to 50 ft. circle on any pressure from 10 lbs. up. Requires no adjusting, has nothing to get out of order and will last for years, with hard daily service.

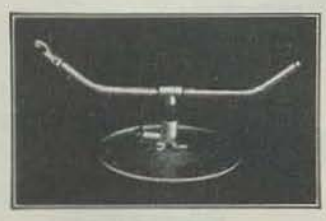


No. T9 . . . . Price $10.50

This Perfection has the Patented Spray Disc Nozzles on both arms in order to get the much desired large, even coverage on very low pressures.

It operates perfectly on pressures from 10 to 25 pounds at the sprinkler and will cover from 65 to 75 ft. diameter, and has every advantage that all Perfections have.

This number has always been a large seller, and is certain to give anyone needing low pressure sprinklers the greatest of satisfaction. Extra nozzles attached.

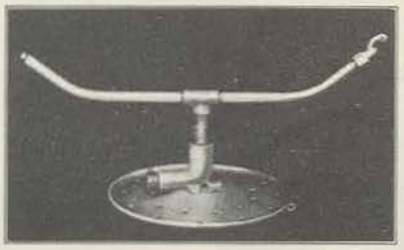


No. T12 . . . . Price $12.60

This Big, little sprinkler is made especially for large coverage on low pressure.

Having a 12" Disc Base it is practical for use on the finest greens and, because it will give a coverage of from 75 to 85 ft. diameter on pressures from 15 lbs. to 25 lbs. at the sprinkler, it cannot be equalled for the many places where the water pressure is limited.

All Perfection Advantages are found in this number and the price is only $12.60, with a full set of extra nozzles attached.



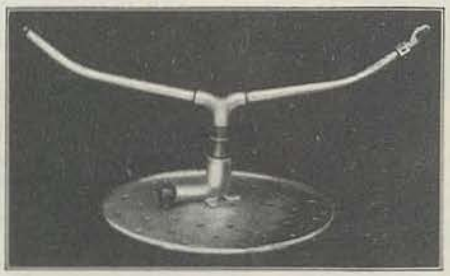
No. 112 . . . . Price $14.70

This Perfection is offered to meet the demand for a sprinkler for hard and long service on somewhat lower pressures that is needed for the Y15. The pressures required are from 20 lbs. to 35 lbs. to give coverages from 85 to 100 ft. diameter.

It has every characteristic Perfection Advantage and the price is made low at $14.70, which is very low in comparison with other sprinklers of equal capacity.

Choose this number for long, hard service.

Full set of extra nozzles attached.

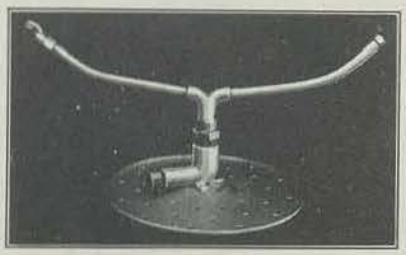


No. Y15 . . . . Price $17.50

This 3/4" hose size Perfection has always lead in popularity. Having a coverage up to 110 ft. diameter on only 35lb. pressure at the sprinkler, and all of the many Advantages Perfections offer, it is the outstanding choice for the average user.

Greenkeepers everywhere have acclaimed this sprinkler to be the greatest sprinkler ever built, and it is recommended as first choice for use on the finest greens where the best is none too good.

Full set of extra nozzles attached.



No. W15 . . . . Price $22.40

This 1" Hose size Perfection, for pressures from 30lbs. to 60 lbs. at the sprinkler, has proven most popular for Greens, Fairways, Cemeteries, Parks, etc., because of its very large, even coverage on moderately high pressures.

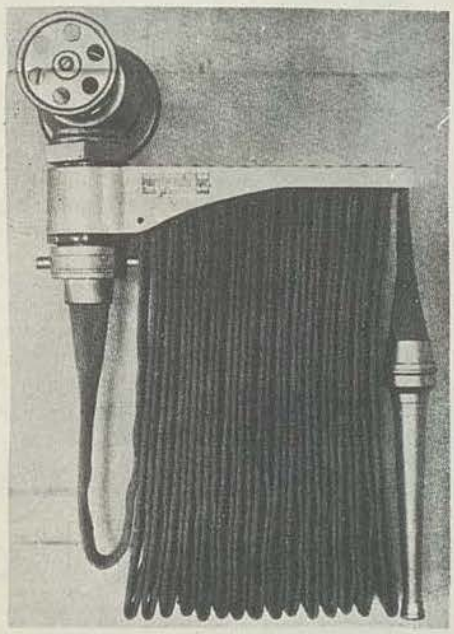
Until one has seen this sprinkler in operation it's great covering ability cannot be realized.

It's large, slow, even coverage, and characteristic Perfection Simplicity, has made this number one of the most popular. It has a coverage up to 140 ft. diameter and a price of only $22.40 with a full set of extra nozzles attached.

We will be glad to furnish a complete catalogue covering additional Perfection Sprinklers, and also a table of capacities at various pressures.

PEERLESS SWINGING HOSE RACK

FOR UNLINED LINEN HOSE ONLY



Capacity of Racks:—

No. 1—50-ft. Unlined Linen Hose.

No. 2—75 to 100-ft. Unlined Linen Hose.

The number of feet of hose which can be placed on each different size of rack all depends upon the length of the loops of hose.

In ordering racks, be particular to state the size and length of hose which will be placed on the rack.

Also state whether the rack is to be made of brass or iron.

Finish:—Japanned red; Aluminum Bronze; Gold Bronze; White Enamelled; Nickel Plated on Iron; Nickel Plated on Brass; Solid Bronze Polished; Chromium Plated on Brass or Iron.

These racks are made with arms 12″ long to carry 50-ft. of hose, the loops hanging down 19″, and arms 15″ long to carry 75-ft. and 100-ft. of hose, the loops hanging 22½″ and 30″ respectively, and in widths to conform to the widths of the different sizes of hose.

The swivelling of the rack permits the rack to lie flush against the wall on either side of the valve, which is a most valuable feature.

SWINGING FLAT HOSE RACK

This rack is used in warehouses and factories, or wherever a low priced but efficient rack is required.

Rack can be supplied with wall bracket or pipe clamps.

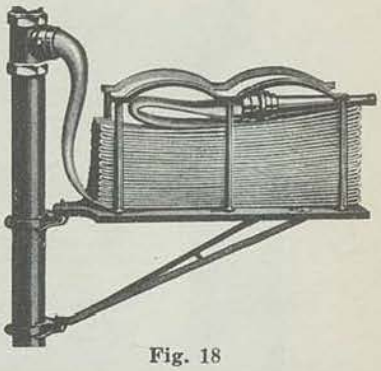


Fig. 18

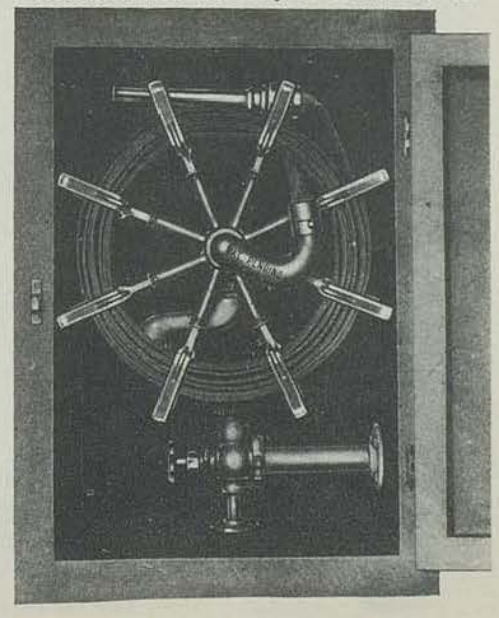
No.			Capacity
oa	for 1¼″ or 1½″	unlined linen hose	50′
o	" 2″	" " "	50′
oo	" 2½″	" " "	50′
1	" 1¼″-1½″-2″	" " "	100′
2	" 2½″	" " "	100′
3	" 1¼″-1½″-2″	" " "	150′
4	" 2½″	" " "	150′
3	" 1¼″-1½″-2″	Cotton rubber lined hose	50′
4	" 2½″	" " "	50′
5	" 1¼″-1½″-2	" " "	100′
6	" 2½″	" " "	100′

Clamps or wall brackets as desired.

Extra price for clamps over 3½″ in size.

Cabinet Type, Style A

The New Marvel Instantaneous Montgomery Hose Reel installed ready for immediate use.



"Pyrene" Fire Extinguisher

For Home, School, Summer Cottage, Motor Boat, Automobile, Truck, Tractor and Factory Protection.

Particularly effective on fires in Oils, Gasoline or Paints.

Safe for use on Electrical Fires. Standard for Street Car, Power Station, Railroad Coach, Sleeping Car and Motor Bus Equipment.

Approved by Dominion Railway Commission, U.S. Steamboat Inspection Service, U.S. Bureau of Standards, U.S. Bureau of Mines and Good Housekeeping Institute. Approved and labeled by Underwriters Laboratories.

Will not freeze to 50 degrees below zero.

Use only PYRENE LIQUID. Other liquids will damage mechanism.

PRICES

PYRENE EXTINGUISHER—
Brass, complete with Bracket, $14.00
Chrome Plated 16.00
1½ quart 18.00

PYRENE LIQUID REFILLS, each 2.00

EXTRA PYRENE BRACKET, each 1.25

"Accurate" Five Gallon Pump Tank

Fitted with heavy double action brass pump. Throws a continuous stream 40 to 50 feet. Charged with plain water for heated locations. For unheated locations Freeze Proof Compound is added to withstand temperature to 40 degrees below zero.

More effective than buckets or pails because stream can be directed and controlled. Nominal capacity, 5 gallons—actual capacity unlimited where extra water is available, as tank may be refilled while being operated.

Inspected and labelled by Underwriters Laboratories.

Approved for protection of Warehouses, Freight Sheds, Lumber Yards, Camps and Forestry protection. Packed individually—shipping weight, 17 lbs.

PRICE

"Accurate" Five Gallon Pump Tank; galvanized iron, each..... $20.00
Polished Copper, each..... 28.00
"Accurate" Freeze Proof Compound (to prevent freezing to 40 degrees below zero) 3.00

2 Quart
Pressure Type
PYRENE

HEAVY DUTY PRESSURE TYPE

2 Quart (U.S.) Green Duco Finished..... 50.00
1 Gallon (U.S.) Polished Copper..... 85.00

HEAVY DUTY PUMP TYPE

2 Gallon (U.S.) Polished Copper..... 85.00

"Phomene" Foam Type Extinguisher

Rated capacity, 2½ gallons.

Inspected and labelled by Underwriters Laboratories.

Operated by turning upside down—generates 20 gallons of fire blanketing foam.

Effective on fires in Oils, Gasoline, Paints, Varnishes, Lacquers, Enamels, etc., etc.

Recommended and approved for Garage and Filling Station protection.

Instructions on Name Plate—simple to operate—effective in hands of a novice.

Phomene Extinguishers are packed individually—shipping weight, 25 lbs.

PRICE

Phomene Extinguisher—polished copper—complete with Charge and Bracket, each $25.00
Phomene (Foam Type) Recharges, for any Foam Type Extinguisher, ea. 2.00

"Guardene" Fire Extinguisher

Standard Soda and Acid Type (chemical) Extinguisher. Rated capacity, 2½ gallons.

Inspected and labelled by Underwriters Laboratories.

In the head is a cage holding bottle half filled with Sulphuric Acid. Tank is filled to water mark with solution Bicarbonate of Soda. Lead Stopper in bottle prevents acid from deteriorating.

To operate turn upside down—lead stopper falls from bottle, allowing acid and soda solution to mix, which forms gas pressure and expels liquid. No danger—tested to 350 lbs. pressure.

Never use on electrical fires unless current has been turned off. Packed individually. Shipping weight, 20 lbs.

PRICE

Guardene—Polished Copper, complete with Charge and Bracket..... $20.00
Guardene Soda and Acid Recharges, with Safety Cap on Acid Bottle (for any Soda and Acid Extinguisher)..... .90

Pyrene
KILLS FIRE
SAVES LIFE

Type BD 15 American Metal Hose

Steam cannot burn it; oil will not rot it. Adapted to the carrying of oils, fats, greases; also superheated steam. Not recommended for saturated steam except under exceptional circumstances. BD 15 bronze hose is suitable for all ordinary steam purposes, particularly in sizes ¾-inch and up.

I.D. In.	O.D. In.	Steel per Ft.	Bronze per Ft.	I.D. In.	O.D. In.	Steel per Ft.	Bronze per Ft.
*3/16	5/16	$.12	....	1	1 1/4	$.80	$1.60
*1/4	25/64	.15	....	1 1/4	1 15/32	1.00	2.25
*5/16	29/64	.20	....	1 1/2	1 3/4	1.20	2.70
*3/8	17/32	.25	....	2	2 1/4	1.50	3.50
1/2	11/16	.40	$.75	2 1/2	2 27/32	1.90	4.00
3/4	1	.60	1.25	3	3 3/8	2.30	5.50

*Ball bearing.

Prices on small and special sizes upon application.

Type BD 20 American Metal Hose

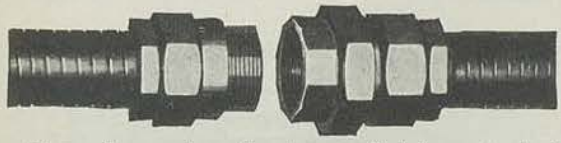
Designed for high pressure work, or where hose is subjected to considerable handling and dragging about.

BD20 is a bare hose covered with braiding of bronze or steel wires and wound with a spiral steel armor wire in sizes ½-inch and longer, in lengths 8 feet and longer. Recommended for blowing boiler tubes, and frequent and regular bending duties.

	Per Foot				Per Foot		
	Bronze Hose		Steel Hose		Bronze Hose		Steel Hose
I.D. In.	Steel Wire Braided	Bronze Wire Braided	Steel Wire Braided	I.D. In.	Steel Wire Braided	Bronze Wire Braided	Steel Wire Braided
3/16	$.34	$.36	$.26	1/2	$1.05	$1.15	$.75
1/4	.41	.43	.31	3/4	1.55	1.65	1.05
5/16	.52	.55	.37	1	2.05	2.20	1.40
3/8	.70	.75	.50	1 1/4	2.45	2.65	1.65

American Couplings for BD15 and BD20 Hose

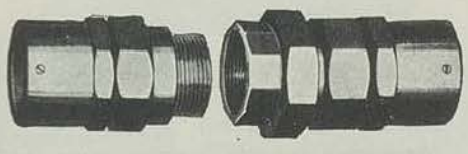
No. 1 Packed Couplings



All couplings, unless otherwise specified, have standard iron pipe threads corresponding in size to internal diameter of hose to which they are attached.

Size In.	Per Set Attached To BD15 Hose	Per Set Attached To BD20 Hose	Size In.	Per Set Attached To BD15 Hose	Per Set Attached To BD20 Hose	Size In.	Per Set Attached To BD15 Hose	Per Set Attached To BD20 Hose
1/4	....	$2.50	1	$4.50	$6.50	2 1/2	$13.00	.....
3/8	....	3.00	1 1/4	5.50	8.00	3	15.00	.....
1/2	$2.50	3.50	1 1/2	7.00	....	...	.....	.....
3/4	3.50	5.00	2	9.00	....	...	.....	.....

No. 2 Packed Couplings



Have tailpieces and flexible metal reinforced ends.

1/4	....	$3.00	1/2	$3.50	$5.25	1	$7.00	$9.75
3/8	....	4.00	3/4	5.00	7.50	1 1/4	9.00	12.00

No. 1 Soldered Couplings

Attached to the hose with solder and should only be employed where heat is not sufficient to melt solder.

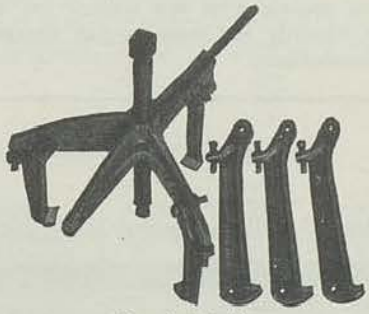
1/4	$.80	$1.00	1	$3.50	$4.25	2 1/2	$10.00	.....
3/8	1.25	1.50	1 1/4	4.50	5.75	3	13.00	.....
1/2	1.50	2.00	1 1/2	5.50	....	...	.....	.....
3/4	2.50	3.00	2	8.00	....	...	.....	.....

No. 2 Soldered Couplings

For BD15 and BD20 hose, prices upon application.

Crane Wheel and Gear Pullers

2-Arm Puller



Crowfoot Puller

For removing gears, pulleys, couplings, fly wheels, etc.

There are Crane puller attachments to bend pipe, remove paper faced pulleys, truck wheels, and pulleys and gears any distance from the end of the shaft.

Arms and 2-arm beams drop forged from .40 carbon steel.

The crowfoot beams cannot be forged. They are certified malleable iron castings. Screws are hardened and tempered in oil. The crowfoot style can be used as either a 2-arm or 3-arm puller and is the type recommended for gear and pulley work.

All Crane pulleys are guaranteed against defective workmanship or material.

No. 0

For handling light work only, such as timing and pump shaft gears, generator and starting motor pinions. Equipped with arms that reach 3 and 6 inches from the beam. Takes diameter up to 6 inches. Center screw, 5/8x9 inches.

Description		2-Arm	Crowfoot
No. 0	each	$6.00	9.00
Weight, Boxed	pounds	5	8

No. 2

The medium size for removing rear wheels from small cars, pinion gears from electric motors, and other machine shop work that does not require a heavy tool. Equipped with arms that reach 6 and 10 inches from the beam. Takes diameters up to 12 inches. Center screw, 1x14 inches.

Description		2-Arm	Crowfoot
No. 2	each	$14.00	20.00
Weight, Boxed	pounds	24	37

No. 3

Designed for work on heavy cars, small trucks, pulleys, pinions and gears. It is equipped with arms that reach 7 and 11 inches from the beam. Takes diameters up to 18 inches. Center screw 1¼x16 inches.

Description		2-Arm	Crowfoot
No. 3	each	$20.00	28.00
Weight, Boxed	pounds	39	65

No. 4

Extra large size for heavy work and work of large diameters. It is made in the 2-arm and 3-arm styles only. Equipped with arms that reach 8 and 13 inches from the beam. Takes diameters up to 24 inches. Center screw, 1½x20 inches.

Description		2-Arm	3-Arm
No. 4	each	$33.00	50.00
Weight, Boxed	pounds	65	110

For Fifty Years

We have been manufacturing practically the same brands of Babbitt Metal.

The fact that these brands have survived and are even more popular today than ever before proves the lasting quality and efficiency of Wing's Babbitt Metals.

If you are not completely satisfied with the metals you are using, we invite you to consult our metallurgist for our recommendations.

Prices on all metals on application.

Wing's High Speed Babbitt Metal

Has been in use for nearly fifty years. A lead base babbitt, toughened with tin, copper hardened. For general purposes, initial installation work, main engine bearings, woodworking shops, saw and paper mill machinery, flour mills, shafting, etc., this alloy is in a class by itself, fulfilling about ninety percent of the mechanical wants in babbitt metal.

It is of unvarying quality, melts easily, is free from scum or dross, and pours as freely as water, forming smooth and perfect bearings which require very little oiling.

Belle Isle Genuine Babbitt Metal

A high-grade babbitt metal that does the work of Strictly Genuine and at a much lower price. Known among mechanics as the "BIG" metal and is used in hundreds of woodworking plants where the speeds are high and duty severe; guaranteed to do all that Genuine will do and many things satisfactorily that Genuine will not do. Belle Isle Genuine, like all of Wing's alloys, is made from the very best grades of refined metals, properly balanced and carefully inspected by experts skilled in technical, metallurgical and laboratory practice.

Wing's Coin Babbitt Metal

A lead base and antimony alloy, used in slow speed and light duty bearings such as farm implements, boxes for shafting, lead hammers, etc.

Packed in 25, 50 and 100-pound boxes.

Nickelmotor Babbitt Metal

A dependable high speed tin base alloy—contains no lead. Made of pure virgin materials properly mixed and fluxed by experienced men. For extraordinary fast running machinery such as dynamos, aeroplane and marine work. Especially adapted to automobile connecting rod bearings which require a hard, tough alloy, high in tensile strength. Suitable for both die cast and hand poured bearings. Nickelmotor will fill about one-fourth more space than the same weight of lower grades thus making the difference between the first cost much less than the variation in price might indicate.

Wing's babbitt metals are packed in 25, 50 and 100 pound boxes, guaranteed by the manufacturer to be entirely satisfactory in every respect or cost refunded. Order a trial box for your next job of babbitting.

Advise us your requirements and babbitt needs and we shall be pleased to recommend the right alloy for the right place.

Prices on all metals on application.

Genuine Babbitt Metal

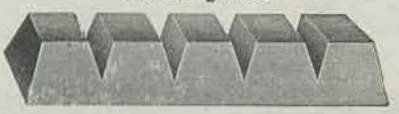
Made according to the old original formula patented by Isaac Babbitt in 1839, is composed of tin, 90%, antimony, 7%, and copper, 3%. This grade of babbitt metal is suitable for very fast running machinery such as engines, woodworking machinery, etc.

Metals

Pig Lead

Pigs weigh about 100 pounds.

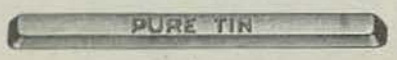
Caulking Lead



Blocks weigh about 4 pounds.

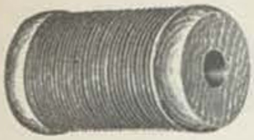
Pig Tin

Bar Tin



Prices on application.

Wire Solder



This wire solder is made from new lead and new tin. It is carefully mixed in equal parts, 50 per cent tin and 50 per cent lead.

Half and Half Solder

This solder is carefully mixed in equal parts from new lead and new tin. High grade. Free from impurities.
Prices on application.

40-60 Solder

Made only from new metal; 60% lead and 40% tin. It makes a first class dipping solder and can be used where a higher tin content is not required.

Prices on application

Silver Solder

This silver solder is best adapted for brazing tempered steel.

Width, ¼ to 1 inch.

Furnished in 1-ounce boxes.

Prices upon application.

Antimony

Wiping Solder

Aluminum **Bronze** **Bismuth** **Phosphor Tin** **Sheet Zinc** **Nickel**

Prices on Application

Babbitrite

Recognizing the industrial needs for a material to retain molten babbitt metal, while pouring bearings, that would combine strength of body with the quality of adhering closely to the work and of retaining an even consistency without drying out and yet remaining absolutely free from moisture, a product "Babbitrite" which successfully meets all of these exacting requirements has been developed. Babbitrite eliminates blow-outs, will adhere to the work, can be used 100 times, and will not melt, dry out or harden.

Size Containers, Lbs. 5 15 30 50

Kester Acid-Core Wire Solder

Kester Acid-Core Wire Solder is a hollow wire of genuine tin and lead containing pockets which hold an acid flux. As the solder is used these pockets are opened, one at a time, supplying a sufficient quantity of flux to the right place at the right moment.

Experienced mechanics who have been soldering the old-fashioned way with a messy acid or paste, have been quick to see that Kester saves them the time generally required for fluxing a job, thereby permitting cleaner, quicker and more substantial work in half the usual time.

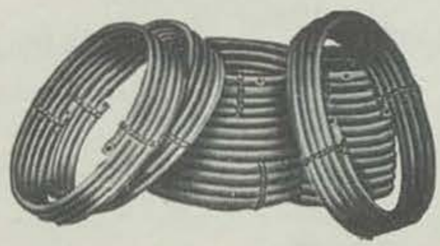
1-pound Spool.
5 " "

Kester Rosin Core Wire Solder

Standard size No. 5 Kester Rosin Core Wire Solder is approximately $\frac{3}{32}$ inch in diameter, running about 50 feet to the pound. This size is available in one-pound cartons, one, five, and ten pounds and may be had in sizes from approximately ⅛ inch diameter to about 1/16 inch diameter. Also the ribbon or flat type.

One-pound Spool
Five " "
Ten " "

BLOCK TIN PIPE



Inside Diameter. . Inches	¼	⅜	½
Weight, per Foot ounces	3 and 5	4, 5, 6, 8 and 10	4½, 5, 6 and 8
Inside Diameter. . Inches	⅝	¾	1
Weight, per Foot ounces	8 and 10	10 and 12	15 and 18
Inside Diameter. . Inches	1¼	1½	2
Weight, per foot pounds	1¼ and 1¾	1½ and 2	3 and 4

Lead Wool

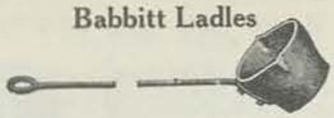
Widely used for caulking water and gas pipes. Insures a lasting, leak-proof joint. Eliminates melting.

Excellent for caulking under water or in wet ground.

Packed in 50 lb. bags.

Prices on application.

Babbitt Ladles



Cast bowl. Wrought iron handles.

Diam. Ins.	Each	Capacity, Pounds	Quarts	Length Overall, Inches	Weight, Pounds
6	3.70	25	1	32	7
8	5.50	50	2	45	12
10	9.00	100	4	52	20

Plumbers' Malleable Iron Ladles

Double Lipped

Diam. Inches	Price Per Doz.	Length Inches	Capacity Pounds	Wght. per Doz., Lbs.
2½	3.60	13	1	9
3	4.80	13	1½	10
3½	6.00	15½	2½	14
4	7.20	16	3½	17
5	9.00	19	7	24
6	12.00	21	12	30

Hollands Melting Pots

Cast bowl. Wrought iron handle.

Diameter Inches	Price Each	Depth Inches	Capacity Pounds	Weight Pounds
4	.60	2¼	8	2
5	.75	2¾	10	2½
6	1.05	3½	15	4
7	1.50	3¾	20	5
8	2.15	4¼	35	6
9	3.25	5¼	45	10
10	4.30	5¾	70	15

Hardening and Tempering Pots

For oil, lead and cyanide. These pots are made in all sizes and designs to suit requirements. Castings are of solid, close grain special metal to stand high heats.

Can use customer's patterns.

Prices upon application.

Rubbing Bricks

Vitrified and Silicate Bonded

For removing form marks, mould marks, and for dressing down all kinds of concrete work.

Plain

Size, In.	4x2x1	4x2x2	4x3x2	6x2x½	6x2x1	6x2x2	6x3x2
Each	.55	.85	1.10	.65	.70	1.10	1.50
Size, In.	6x3x3	8x2x1	8x2x2	8x3x2	8x3x3	8x4x2	8x4x4
Each	2.15	.85	1.40	1.90	2.80	2.50	4.90

Fluted

Size, Inches	4x2x2	6x2x2	8x2x2	8x3x3
Each	.85	1.10	1.40	2.80

Norton India Bench Stones

For carpenters and machinists using tools with broad, flat edges. Oil filled. Made in 3 grits: Coarse, medium and fine.

Coarse No.	Medium No.	Fine No.	Each	Size Inches	Std. Pkg.	Wt., Lbs.
CB8	MB8	FB8	$1.90	8x2 x1	6	9
....	MB48	FB48	1.70	8x2 x ¾	6	6
CB7	MB7	FB7	1.55	7x2 x1	6	8
CB6	MB6	FB6	1.45	6x2 x1	6	7
....	MB36	FB36	1.15	6x2 x ⅝	6	3½
....	MB26	FB26	.90	6x1½x ½	6	2½
....	MB35	FB35	1.05	5x2 x ⅝	6	3
....	MB124	FB124	.85	4x1¾x ½	6	1½
CB24	MB24	FB24	.70	4x1 x ½	12	2½
CB14	MB14	FB14	.60	4x1 x ¼	12	1

Norton India Combination Stones

A coarse and fine stone vitrified together. The coarse side grinds down dull tools and the fine side puts on a finished edge. Useful for planer and paper-cutting knives.

Also made round in shape for rotary strokes.

No.	IB8	IB7	IB6	IB45	IB134	IB64
Each	$2.20	1.90	1.55	1.25	1.05	1.55
Size, in.	8x2x1	7x2x1	6x2x1	5x2x¾	4x1¾x⅝	4x1 Round
Std. Pkg.	6	6	6	6	6	6
Wt., lbs.	10	8½	7¼	3½	2½	8

Black Donald Lubricating Flake Graphite

Mined and Refined in Canada

This flake is guaranteed 94 to 96 per cent purity.

3 sizes of flake: No. 1, coarse; No. 2, fine flake; No. P. F., powdered flake.

Put up as follows: Lithographed tins, ½, 1 and 5 pounds. Wooden containers, 25, 50 and 100 pounds. Barrels (paper lined), 200 and 400 pounds.

Prices upon application.

GENUINE C. O. ÖBERG & Co. ESKILSTUNA PRECISION FILES "PANSAR" FILE BLADES

The teeth of the Pansar File differ from ordinary file teeth in that they are not cut but milled, and are shaped in circular arcs, the centres of which closely coincide with the longitudinal axis of the file. Self steering during the process of filing and is therefore a very comfortable tool to work with. Clears itself automatically of filings which are regularly carried off to both edges of the file. Does excellent work on bronze, cast iron, steel and brass, also on aluminum, lead, babbit metal, etc. It is also used successfully for filing wood, fibre, stone (Marble), etc. **Will cut much more quickly than an ordinary file and, although it removes more material than a coarse file, still it leaves a smoother surface.**

FLAT BLADES—FLEXIBLE

Milled on both sides and is in general use by the automobile body manufacturers and fender and body repair shops. It cuts with ease all materials used in the manufacture of bodies, leaving a very fine and smooth surface which may be painted or lacquered without any polishing.

		8	10	12	14
Size Inches		8	10	12	14
Weight Per Doz.		1⅞	3	5¼	7½ lbs.
Bastard Cut.	Per Doz.	**$14.00**	**$16.80**	**$21.00**	**$25.40**
Smooth Cut.	Per Doz.	**16.00**	**18.90**	**22.80**	**27.60**

PACKED ONE DOZEN IN A CARTON

WOOD HOLDERS FOR FLAT PANSAR BLADES

Made from well-seasoned stock. Bored ready for use—complete with screws. For 14" only.

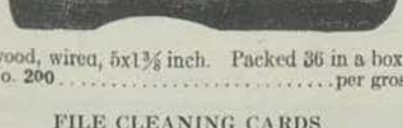
Weight Per Doz. 8 lbs.
No. 140 Per Doz. **$6.00**

Lutz File Handles

An indestructible hardwood handle with 18-gauge steel ferrule. Hole is punched in end of ferrule. Ends are turned to create a stronger point.

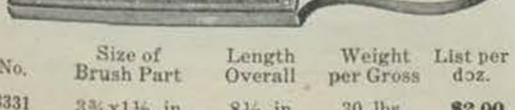
No.	Lgth. In.	Max. Hdle. Diam., In.	For Files In.	Per Gross	No.	Lgth. In.	Max. Hdle. Diam., In.	For Files In.	Per Gross
1	4	1	3 to 6	**4.60**	4	5½	1 7/16	12 to 16	**17.50**
2	4½	1 3/16	6 to 8	**13.25**	5	5⅞	1 9/16	16 to 20	**20.50**
3	4⅞	1 5/16	8 to 12	**15.00**					

No. 200 Soldering Copper Handles



Soft wood, wired, 5x1⅜ inch. Packed 36 in a box.
Price, No. 200 .... per gross **$9.60**

FILE CLEANING CARDS



No.	Size of Brush Part	Length Overall	Weight per Gross	List per doz.
3331	3¾x1½ in.	8½ in.	30 lbs.	**$2.00**

Clover Grinding and Lapping Compound

Single Grade Cans
For Shop, Garage and Toolroom Use

Clover grinding and lapping compound is made of the sharpest abrasive grain known, carefully graded and mechanically mixed to a perfect uniformity with a specially made petroleum hard oil.

This specially made binder holds the abrasive suspended in mechanical mixture under a temperature of 250° Fahrenheit. Hence, Clover will not break down under friction; it will not melt, run or crumble; it is always uniform while doing its work. Costs less to use because there is no waste; it does better work and gives good results when used with a power driven tool, and Clover being non-magnetic, can be used on cast iron without danger of bad after effects.

The Clover 4-ounce duplex can contains two grades: E (coarse) for roughing and A (fine) for finishing. This can is fitted with quick grip covers and is intended to be carried in the kit. The compound in this can is suitable for grinding valves, lapping cylinders, fitting piston rings, etc. The 2-ounce duplex can is similar to 4-ounce, only smaller.

4-Ounce Duplex Can
For the Kit

Clover is also put up in single grade cans, for shop, garage and toolroom use.

Clover Grinding and Lapping Compound is made in the following eight grades:

2-A (Microscopic fine) for fine lapping, surfacing, fitting of parts.

1-A (very fine) for fine lapping, surfacing, fitting of parts, lapping dies, gauges, fine polishing, etc.

A (fine) for finishing valve grinding, lapping cylinder rings into cylinders, grinding crank shafts into bearings, running together gearing, etc.

B (medium fine) finishing grade, or on fine work used for roughing.

C (medium) for cylinder lapping, light power grinding.

D (medium coarse) for roughing valves, medium heavy roughing and grinding.

E (coarse) for roughing valves, for use on large surfaces, and for quick work.

50 (special) an exceedingly coarse compound for extra heavy work.

Both the 4 and 2-ounce duplex cans, the ¼ and ½-pound single grade cans are packed in units of 12, in wooden boxes for convenience in stocking.

Boxes are plainly marked on the cover, ends and sides with the name of the goods, and style and number of cans.

4-Ounce Duplex Can	each	$.50
2-Ounce Duplex Can	each	.30
¼-Pound Any Grade	each	.50
½-Pound Any Grade	each	.85
1 Pound Any Grade	each	1.50
5 Pounds Any Grade	each	6.00

The grades of Clover desired, should always be specified when ordering single grade cans.

Files

Mill, Bastard

Mill, Second Cut

Mill, Smooth

Double Cut Bastard

Double Cut Second Cut

Double Cut Smooth

Rasp Cut Horse

Rasp Cut Wood

Rasp Cut Cabinet

GRADES.—The grades are divided as follows: Rough bastard, second cut, smooth and dead smooth.

These five grades are the most in use, and are made from or by two separate cuts on the file, which forms a diamond shaped tooth. The first cut which is put on the file is known as the "over cut," and the second as the "up cut." For mill saw and taper saw files, only the "over cut" is used to form the tooth, the tooth being a sharp ridge of metal extending at a sharp angle across the face of the file, and not intersected by any other stroke of the cutting chisel. This last tooth, as applied to mills and tapers, goes under the two grades of bastard and second cut. The only other tooth which is in use, is that applied to horse rasps, wood rasps, cabinet rasps and shoe rasps. This tooth is raised to a conical form by the use of a punch. On horse rasps it is too large to designate by any grade of cut. On wood and cabinet rasps it is graded under the head of bastard smooth, and sometimes second cut.

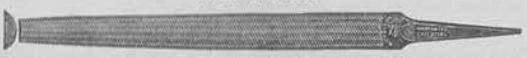
Flat, Hand and Pillar

The flat file is used by machinists, machinery, ship and engine builders, repairmen etc.

The hand file is preferred by machinists and engineers for finishing flat surfaces.

The pillar file is used by machinists and repairmen for filing slots and keyways.

Half Round

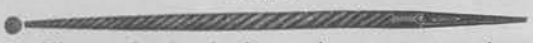


Generally used by machinists, engineers, repairmen, etc., and because of the section being rounded on one side and flat on the other, permits of a variety of uses.

Three Square

For general use by machinists for filing internal angles more acute than the rectangle, clearing out square corners, filing taps, cutters, etc.

Round



For filing or enlarging circular openings or concave surfaces.

Square

For filing slots, keyseats, and general surface filing.

Mill

For filing mill or circular saws, also planer knives and mowing machine knives; for lathe work, draw-filing and for finishing the several compositions of brass and bronze.

Files

Knife

Used principally by tool and die makers on work having acute angles.

Warding

For locksmiths in repairing or filing the ward notches in keys. Also suited for use in narrow spaces where other files would be too thick.

Flat Wood Rasp

Used by woodworkers, wheelwrights, plumbers, etc.

Half Round Wood Rasp

Used by woodworkers, wheelwrights, plumbers, etc.

Half Round Cabinet Rasp

For use by cabinet makers and woodworkers.

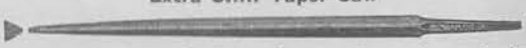
Regular Taper Saw

Made for filing and sharpening any type of saw having 60-degree angle teeth.

Slim Taper Saw

Made for filing and sharpening any type of saw having 60-degree angle teeth.

Extra Slim Taper Saw

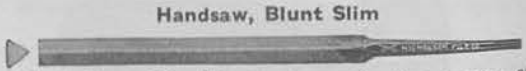


Made for filing and sharpening any type of saw having 60-degree angle teeth.

Double Ender

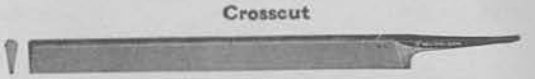
Made for filing and sharpening any type of saw having 60-degree angle teeth.

Handsaw, Blunt Slim



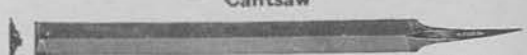
Principally used for filing handsaws; also for machine filing.

Crosscut



Used for filing or sharpening crosscut saws.

Cantsaw



Used for filing or sharpening crosscut saws with the so-called M teeth.

Files and Rasps

JAN. 2. 1936

PRICE PER DOZEN

Inch	FLAT			HAND			PILLAR		
	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth
4	2.20	2.40	2.90	2.20	2.40	2.90	2.20	2.40	2.90
5	2.70	2.90	3.40	....	....	....	....	....	....
6	2.70	2.90	3.40	2.70	2.90	3.40	2.70	2.90	3.40
7	3.60	3.90	4.60	....	....	....	....	....	....
8	3.60	3.90	4.60	3.60	3.90	4.60	3.60	3.90	4.60
10	4.90	5.30	6.30	4.90	5.30	6.30	4.90	5.30	6.30
12	6.60	7.30	8.50	6.60	7.30	8.50	6.60	7.30	8.50
14	8.70	9.50	11.20	8.70	9.50	11.20	8.70	....	....
16	11.20	12.60	14.60	11.20	12.60	14.60	11.20	....	....
18	15.80	17.50	20.40	15.80	17.50	20.40	....	....	....
20	20.70	....	....	20.70	....	....	....	....	....

Inch	HALF ROUND			ROUND			ROUND BLUNT
	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.
4	2.70	3.20	3.40	1.90	2.20	2.70	....
5	3.40	3.60	4.10	2.40	2.70	3.20	....
6	3.40	3.60	4.10	2.40	2.70	3.20	....
7	4.10	4.60	5.30	3.20	3.60	4.10	....
8	4.10	4.60	5.30	3.20	3.60	4.10	3.50
10	5.10	5.80	7.00	3.90	4.60	5.30	4.60
12	6.80	7.80	9.20	5.30	6.30	7.00	6.30
14	9.20	10.40	12.10	7.30	8.50	9.50	9.10
16	12.60	14.10	16.00	10.90	11.90	13.60	....
18	17.00	19.40	21.90	17.00	19.40	21.90	....
20	....	....	....	21.90	....	....	....

Inch	SQUARE			SQUARE BLUNT	THREE SQUARE			CROSSING	
	Bast.	2nd Cut	Smooth	Bast.	Bast.	2nd Cut	Smooth	Bast.	2nd Cut
4	2.20	2.70	3.20	....	2.20	2.70	2.90	....	....
5	2.70	2.90	3.40	....	....	....	....	....	....
6	2.70	2.90	3.40	....	2.90	3.40	3.90	....	....
7	3.20	3.60	4.40	....	....	....	....	....	....
8	3.20	3.60	4.40	3.60	3.90	4.10	4.90	....	....
10	4.10	4.90	5.60	5.00	5.10	6.10	7.00	....	....
12	5.80	6.60	8.00	6.80	7.00	8.30	9.70	10.20	11.70
14	7.80	8.50	10.00	9.30	9.20	10.90	12.90	13.90	15.70
16	10.90	12.40	14.30	12.70	12.60	14.60	17.00	19.00	21.10
18	14.60	16.50	18.20	....	17.00	19.40	21.90	....	....
20	19.40	....	....	....	....	....	....	....	....

INCH	WARDING			KNIFE			INCH
	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	
3	2.40	2.70	3.20	....	....	....	3
3½	2.40	2.70	3.20	....	....	....	3½
4	2.40	2.70	3.20	4.10	4.60	5.10	4
4½	2.90	3.20	3.60	....	....	....	4½
5	2.90	3.20	3.60	4.40	4.90	5.30	5
6	3.40	3.60	4.10	4.90	5.30	6.10	6
8	4.40	4.90	6.10	5.80	6.60	7.80	8
10	5.60	6.30	7.30	7.30	8.30	9.70	10
12	....	....	....	10.20	11.40	12.60	12
	....	....	....	....	....	....	
	....	....	....	....	....	....	

Inch	CABINET FILES	LEAD FLOATS		LONG ANGLE LATHE		SHEAR TOOTH			BRASS		TYPE A ALUMINUM		FLAT ALUMINUM		Flat Armory	HAND FINISHING		Inch
		Flat	Half Round	Flat	Mill	Flat	Half Round	Square	Flat	Half Round	Flat	Half Round	No. 75	No. 76	Cut	2nd Cut	Smooth	
6	4.60	2.70	3.40	3.20	....	2.70	3.40	....	3.60	4.10	3.20	3.80	....	....	....	....	....	6
8	6.10	3.60	4.10	4.30	....	3.60	4.10	....	4.90	5.10	4.30	4.60	....	....	....	4.60	5.50	8
10	7.30	4.90	5.10	5.80	4.90	4.90	5.10	....	6.60	6.80	5.80	6.00	....	....	....	6.30	7.40	10
12	9.20	6.60	6.80	7.70	6.60	6.60	6.80	5.80	8.70	9.20	7.70	8.00	7.70	....	8.70	8.40	9.80	12
14	12.60	8.70	9.20	10.00	9.10	8.70	9.20	7.80	....	....	10.00	10.90	....	10.00	....	11.10	12.90	14
16	....	11.20	12.60	13.50	12.60	....	....	....	....	....	13.50	14.80	....	....	....	....	....	16

Solid Hdle. Mower	9"	$5.40
Auger Bit Files	7"	3.40
General Purpose	12"	8.70
Plow Files	12"	8.50
Planer Knife Files	8"	4.90
	10"	6.30

Inch	HORSE RASPS			Inch	WOOD RASPS				CABINET RASPS		SHOE RASPS		Inch	ROUND WOOD RASP	ROUND CABINET RASP	LAST MAKERS CABINET RASP		Inch
	PLAIN		Tanged		HALF ROUND		FLAT		HALF ROUND									
	Regular	Slim			Bast.	Smooth	Bast.	Smooth	Regular	Smooth	Flat	Half Round		Bast.		Bast.	2nd Cut	
....	....	....	....	6	3.90	4.40	3.40	4.10	4.60	5.60	4.40	5.10	6	4.10	4.60	....	....	6
12	7.30	....	8.70	8	4.90	5.60	4.10	5.10	6.10	7.00	5.10	5.80	8	5.30	6.10	....	....	8
13	8.50	....	10.20	9	....	....	....	....	....	....	5.60	6.30	10	6.80	7.30	8.70	10.00	10
14	9.70	....	11.70	10	6.10	7.30	5.10	6.60	7.30	8.70	6.30	7.00	12	8.70	9.20	....	....	12
15	11.20	....	13.60	12	8.00	9.20	6.80	8.00	9.20	11.20	....	....	14	11.40	12.60	....	....	14
16	13.10	12.10	15.80	14	10.40	12.10	9.20	10.70	12.60	14.60	....	....	....	....	....	....	....	....
18	17.30	14.60	....	16	13.40	15.80	12.10	14.60	....	....	....	....	....	....	....	....	....	....

Inch	MILL SAW FILES							Special Cross Cut	Inch	TAPER SAW FILES					HANDSAW BLUNT		
	REGULAR OR BLUNT									REGULAR		SLIM	EXTRA SLIM	DOUBLE EXTRA SLIM			
	TWO SQUARE EDGES			One Round Edge		Two Round Edges				Single Cut	Double Cut	Single Cut	Single Cut		Regular	Slim	Extra Slim
	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Bast.	2nd Cut										
4	1.90	2.20	2.40	....	....	....	....	....	3	1.70	....	1.70	....	....	....	....	....
5	2.40	2.90	3.40	....	....	....	....	....	3½	1.70	....	1.70	....	....	....	....	....
6	2.40	2.90	3.40	2.70	3.20	2.90	3.40	2.40	4	1.70	2.40	1.70	1.70	1.70	1.90	1.90	....
7	3.20	3.90	4.40	3.40	4.10	....	....	3.20	4½	1.90	2.70	1.90	1.90	1.90	2.40	2.40	....
8	3.20	3.90	4.40	3.40	4.10	3.90	4.60	3.20	5	2.20	2.90	2.20	2.20	2.20	2.70	2.70	2.70
9	4.10	4.90	5.60	4.40	5.30	....	....	....	5½	2.40	....	2.40	2.40	2.40	....	....	3.20
10	4.10	4.90	5.60	4.40	5.30	4.90	5.60	4.10	6	2.70	3.40	2.70	2.70	2.70	3.20	3.20	3.20
12	5.60	6.30	7.00	6.10	6.80	6.60	7.00	....	7	3.20	3.90	2.90	2.90	2.90	3.90	3.90	3.90
14	7.50	8.30	9.00	8.50	....	9.50	....	....	8	3.90	4.40	3.40	3.40	3.40	4.90	4.10	....
16	10.70	11.70	12.90	....	....	....	....	....	9	4.90	....	4.10	....	....	....	....	....
..	....	....	....	....	....	....	....	....	10	5.80	....	4.90	....	....	7.30	....	....
..	....	....	....	....	....	....	....	....	12	9.20	....	7.30	....	....	....	....	....

Inch	BANDSAW				INCH	INCH	DOUBLE ENDER	CROSS CUT	CANT SAW	PITSAW	WEBSAW FILES
	TAPER		BLUNT								
	Regular	Slim	Regular	Slim							
4	2.20	....	....	....	4	4	....	....	2.70	2.20	....
5	2.70	....	2.90	....	5	5	....	....	3.20	2.70	4.00
6	3.40	3.40	3.90	3.90	6	5½	....	....	....	....	4.20
7	4.10	3.90	4.90	4.40	7	6	2.70	4.60	3.90	3.40	4.70
8	4.90	4.40	5.80	5.10	8	7	2.90	5.10	4.40	4.40	....
9	....	....	....	....	9	8	3.20	5.10	4.90	5.30	....
10	7.00	....	8.50	....	10	9	3.60	5.80	....	....	....
12	....	....	....	....	12	10	4.10	6.80	7.30	....	....
						12	4.90	9.00	9.70	....	....

Our trade marks are registered throughout the world. Infringements are a menace to our customers, as well as to ourselves, and all infringers will be promptly and rigorously prosecuted.

The sizes for which prices are shown are regularly carried in stock and can be shipped promptly. Other sizes if made, may be subject to delayed delivery.

Unlisted sizes take the price of the next large size listed, i.e. the price for 7" Hand bastard is $3.60.

All prices subject to 10% surcharge for broken package.

Sizes and shapes not on this list are considered a special and may be made in quantities of one dozen or more, at prices based on cost of manufacture.

Grinding Wheels

Made of a high grade, manufactured abrasive, produced in an electric furnace under scientific control.

This product is superior to the natural abrasives.

The wheels are made in two grades of abrasive, and by four different bonding processes.

Silicon Carbide wheels are best suited for the grinding of metals of low tensile strength, such as cast and chilled iron, nonferrous metals, such as copper, aluminum, zinc, tin, and their alloys. They are also used very extensively in the grinding of non-metallic substances, such as rubber, wood, celluloid, porcelain, marble and stone.

Aluminum Oxide wheels are used almost exclusively in the steel industries, and are made to grind metals of high tensile strength and are unexcelled for tool grinding, internal grinding, cylindrical grinding, all types of precision grinding, and for snagging and other heavy duty grinding.

Methods of Manufacture

Vitrified Wheels are bonded with a combination of clays and treated at a high temperature. Wheels made by Vitrified process are of very strong bond and have a wide range of grades or degrees of hardness. These qualities combined with the open structure make Vitrified wheels desirable for nearly all grinding operations. Used extensively for quantity production in the automobile industry.

Silicate Wheels are made with Silicate of Soda as a bond and are treated at a low temperature. The firmness with which the abrasive is held by this bond is not as great as with the Vitrified wheels, so that a Silicate wheel cannot be used for the same type of grinding as is the Vitrified wheel. It is, however, especially adapted to that class of work requiring delicate edges and finish, such as edge tools and cutlery. The nature of the bond makes it possible to produce wheels of a larger diameter than those produced by the Vitrified process.

Shellac Wheels are bonded with the organic material shellac, and are elastic to a certain extent, making possible the manufacture of a very thin wheel. They are adapted to certain definite types of grinding, such as saw sharpening and the cutting of granite and marble. Also used for the finishing of steel rolls, chilled and cast iron, and for cutting off operations.

Resinoid Wheels are a new development, and are superior in cutting off or in slotting and fluting where thick wheels cannot be used. They are also adaptable in the snagging wheel sizes to the cleaning of aluminum castings.

Grains and Grades

In order to meet the requirements of the trade, it has been found that a great variety of grains and grades have to be used.

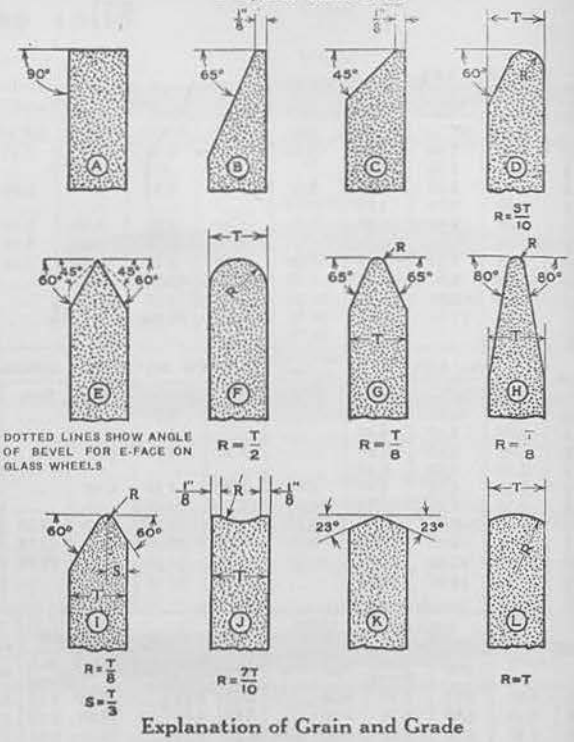
The grain is the abrasive used in making up the wheel. The size of the abrasive particle of a wheel is the grain size. The grain sizes are numbered from 8 to 200 and are classified as shown in the following table:

Grain Sizes (Mesh Size)

Very Coarse	Coarse	Medium	Fine	Very Fine
8	12	30	70	150
10	14	36	80	180
	16	46	90	200
	20	60	100	
	24		120	

When ordering grinding wheels, specify kind of material to be ground, amount to be removed, finish desired, and type of machine.

Shapes of Wheel Faces



Explanation of Grain and Grade

Grinding wheels are made in a variety of grains and grades so that the most efficient wheel can be provided for all conditions. The machining of various shapes of work and different kinds of metal require different wheel structures. Countless numbers of different grain and grade combinations are therefore necessary in order to provide wheels to meet all requirements.

By grain is meant the size of the cutting particles, that is, of the abrasive used in making the wheel.

The abrasive grain used in wheel manufacture is sized through carefully made screens and the finer "flours" are prepared by hydraulic classification. The standard grain sizes are 8, 10, 12, 14, 16, 20, 24, 30, 36, 46, 60, 70, 80, 90, 100, 120, 150, 180, 220 and 240. Sizes finer than these are known as "flours" and are designated as 280, 320, 400, 500 and 600.

The numbers used to designate grain size refer to the mesh of the screen through which the particular grain passes. For example, No. 24 grain is that which passes a screen having 24 meshes or apertures per linear inch, or 576 apertures per square inch, and is retained on a screen having 30 meshes or more per linear inch. Number 30 grain is that which passes a 30 mesh screen and is retained on a 36 mesh or finer screen.

Grade is a term used to denote the hardness of a wheel It actually represents a measure of the strength of the bond or the cohesive force exercized by the bond to retain the grain in its setting. It is not used to express the hardness of the abrasive material itself. Hardness of the abrasive material and hardness of the grinding wheel are two distinctly different things. A grinding wheel may be made of a very hard abrasive and still be a very soft wheel.

Neither is grade an exact value. It is a range between limits and all wheels which come within the range as designated by a particular letter or number, are one grade and carry the same grade letter. As an example, grade "L" does not represent an exact value, but a range within two limits. It will thus be seen that a wheel marked "L" may be almost soft enough to be designated "K," or may be almost hard enough to be designated "M" and still if within the limits it must be graded "L."

Vitrified or Silicate Bonded Straight Grinding Wheels

Price Each, Effective April 10, 1936

Diam. Ins.	Thickness of Wheels, Inches 1/8	1/4	3/8	1/2	5/8	3/4	7/8
1	.45	.45	.50	.50	.55	.55	.60
1½	.50	.50	.55	.55	.60	.60	.65
2	.60	.60	.65	.70	.75	.75	.80
2½	.75	.75	.80	.85	.90	.95	1.00
3	.90	.90	.95	1.05	1.10	1.20	1.25
3½	1.70	1.40	1.50	1.60	1.70	1.80	1.90
4	1.85	1.55	1.65	1.75	1.90	2.05	2.20
4½	2.15	1.75	1.90	2.05	2.20	2.40	2.60
5	2.40	2.10	2.30	2.50	2.70	2.90	3.10
6	2.85	2.50	2.75	3.00	3.25	3.50	3.75
7	3.60	2.90	3.25	3.60	3.95	4.30	4.60
8	4.40	3.45	3.90	4.30	4.70	5.15	5.55
9	.....	4.05	4.60	5.15	5.65	6.15	6.65
10	.....	4.75	5.40	6.05	6.65	7.25	7.85
12	.....	6.30	7.20	8.10	8.95	9.80	10.65
14	.....	.....	.....	10.20	11.50	12.80	14.10
16	.....	.....	.....	.....	.....	16.60	18.30

Diam. Ins.	Thickness of Wheels, Inches 1	1¼	1½	1¾	2	2¼	2½
1	.60	.80	1.00	1.20	1.35	1.55	1.75
1½	.70	.90	1.10	1.30	1.55	1.75	1.95
2	.85	1.10	1.30	1.55	1.80	2.00	2.25
2½	1.05	1.30	1.60	1.85	2.10	2.35	2.65
3	1.30	1.60	1.90	2.20	2.50	2.80	3.10
3½	2.00	2.30	2.65	2.95	3.25	3.55	3.90
4	2.35	2.70	3.10	3.45	3.80	4.15	4.55
4½	2.80	3.20	3.65	4.05	4.45	4.90	5.30
5	3.30	3.80	4.25	4.75	5.20	5.70	6.15
6	4.00	4.60	5.25	5.90	6.55	7.20	7.85
7	4.90	5.70	6.55	7.40	8.25	9.05	9.90
8	6.00	7.00	8.00	9.10	10.15	11.20	12.30
9	7.15	8.40	9.75	11.05	12.35	13.65	15.00
10	8.45	10.05	11.65	13.20	14.80	16.40	18.00
12	11.50	13.75	15.95	18.20	20.45	22.65	24.90
14	15.40	18.40	21.35	24.30	27.25	30.20	33.15
16	20.00	23.80	27.60	31.40	35.20	38.95	42.75
18	25.20	29.90	34.65	39.40	44.10	48.85	53.55
20	.....	36.75	42.55	48.35	54.15	59.90	65.70
22	.....	44.25	51.35	58.45	65.55	72.65	79.75
24	.....	52.55	61.00	69.55	78.10	86.60	95.15
26	.....	64.30	72.25	82.35	92.45	102.55	112.65
28	.....	77.00	84.40	96.15	107.95	119.70	131.50
30	.....	90.65	97.45	111.05	124.60	138.20	151.75
32	.....	106.50	111.40	126.90	142.40	157.90	173.40
34	.....	122.45	126.25	143.80	161.35	178.90	196.50
36	.....	139.85	145.00	164.60	184.25	203.85	223.50

Diam. Ins.	Thickness of Wheels, Inches 2¾	3	3¼	3½	3¾	4
1	1.95	2.15	2.35	2.50	2.70	2.90
1½	2.15	2.35	2.55	2.80	3.00	3.20
2	2.50	2.70	2.95	3.20	3.40	3.65
2½	2.90	3.15	3.40	3.70	3.95	4.20
3	3.40	3.70	4.00	4.30	4.60	4.90
3½	4.20	4.50	4.80	5.15	5.45	5.75
4	4.90	5.25	5.60	6.00	6.35	6.70
4½	5.70	6.15	6.55	6.95	7.40	7.80
5	6.65	7.10	7.60	8.05	8.55	9.00
6	8.50	9.20	9.85	10.50	11.15	11.80
7	10.75	11.60	12.45	13.30	14.15	15.00
8	13.35	14.40	15.50	16.55	17.60	18.65
9	16.30	17.60	18.90	20.25	21.55	22.85
10	19.60	21.15	22.75	24.35	25.95	27.50
12	27.15	29.35	31.60	33.80	36.05	38.30
14	36.10	39.05	42.05	45.00	47.95	50.90
16	46.55	50.30	54.10	57.90	61.70	65.45
18	58.30	63.05	67.75	72.50	77.25	81.95
20	71.50	77.25	83.05	88.85	94.65	100.40
22	86.85	93.95	101.05	108.15	115.25	122.35
24	103.70	112.25	120.75	129.30	137.85	146.40
26	122.70	132.80	142.90	153.00	163.10	173.20
28	143.25	155.05	166.80	178.60	190.35	202.15
30	165.35	178.90	192.50	206.05	219.65	233.20
32	188.95	204.45	219.95	235.45	250.95	266.45
34	214.05	231.60	249.15	266.70	284.25	301.85
36	243.10	262.70	282.35	301.95	321.55	341.20

Resinoid Bond Grinding Wheels

Straight—Each

Diam. Ins.	Thickness, Inches 3/32	1/8	1/4	3/8	1/2	5/8	3/4
1	.55	.60	.65	.70	.75	.80	.85
1½	.60	.65	.70	.80	.85	.90	.95
2	.65	.70	.75	.90	.95	1.00	1.05
2½	.70	.80	.85	1.00	1.05	1.10	1.15
3	.80	.90	1.00	1.15	1.20	1.25	1.35
3½	.90	1.00	1.15	1.30	1.40	1.50	1.65
4	1.00	1.10	1.30	1.45	1.60	1.75	1.95
4½	1.10	1.20	1.45	1.70	1.85	2.05	2.25
5	1.20	1.30	1.60	1.95	2.15	2.35	2.55
6	1.30	1.45	1.80	2.30	2.55	2.80	3.05
7	1.50	1.65	2.10	2.70	3.00	3.30	3.60
8	1.70	1.90	2.45	3.15	3.60	4.05	4.50
9	2.00	2.25	2.85	3.65	4.25	4.80	5.40
10	2.45	2.70	3.45	4.45	5.20	5.95	6.70
12	3.35	3.70	4.90	5.90	6.90	7.90	8.90
14	4.45	4.95	6.45	7.55	8.70	9.90	11.40
16	...	6.25	8.00	9.60	11.15	13.65	16.15
18	...	...	9.50	12.00	14.50	18.00	21.50
20	...	...	12.50	15.50	19.00	23.00	27.00
22	...	...	15.50	19.00	23.50	28.00	32.50
24	...	...	18.50	23.00	28.00	33.50	39.00
26	...	...	....	....	33.00	39.00	45.50
28	...	...	....	....	38.00	45.00	52.50
30	...	...	....	....	44.00	52.00	60.00

Diam. Ins.	Thickness, Inches 7/8	1	1¼	1½	1¾	2	2¼
1	.90	.95	1.00	1.10	1.20	1.30	...
1½	1.00	1.05	1.10	1.20	1.30	1.40	...
2	1.10	1.15	1.25	1.35	1.45	1.55	1.65
2½	1.20	1.25	1.40	1.50	1.70	1.85	2.00
3	1.45	1.55	1.70	1.80	2.00	2.15	2.35
3½	1.75	1.85	2.05	2.25	2.45	2.65	2.90
4	2.10	2.25	2.50	2.75	3.00	3.25	3.55
4½	2.50	2.75	3.05	3.35	3.65	3.95	4.30
5	2.95	3.35	3.70	4.05	4.40	4.75	5.15
6	3.55	4.05	4.50	5.15	5.70	6.25	6.80
7	4.25	4.90	5.60	6.50	7.30	8.10	8.80
8	5.25	6.00	6.90	8.00	9.00	10.00	11.00
9	6.45	7.40	8.55	9.90	11.15	12.40	13.65
10	7.90	9.10	10.50	12.10	13.60	15.10	16.70
12	10.20	11.80	13.80	16.00	18.10	20.20	22.50
14	13.60	15.75	18.60	21.65	24.60	27.00	30.00
16	19.10	22.00	25.00	28.00	31.00	34.00	37.50
18	25.00	28.50	32.00	35.50	39.50	44.00	48.50
20	31.00	35.00	39.00	43.50	49.00	54.50	60.00
22	37.00	42.00	47.00	52.00	59.00	66.00	72.00
24	44.00	49.00	56.00	63.00	70.00	78.00	86.00
26	52.00	58.00	67.00	75.00	83.00	93.00	102.00
28	60.00	67.00	77.00	86.00	97.00	108.00	118.00
30	68.00	76.00	88.00	100.00	111.00	122.00	134.00
32	....	88.00	103.00	116.00	131.00	144.00	158.00
34	....	101.00	118.00	134.00	151.00	167.00	182.00
36	....	114.00	133.00	152.00	171.00	190.00	208.00

Diam. Ins.	Thickness, Inches 2½	2¾	3	3¼	3½	3¾	4
2	1.75	1.85	1.95	...	...	...	...
2½	2.15	2.30	2.45	...	...	...	...
3	2.55	2.75	2.95	3.15	3.35	3.55	3.75
3½	3.15	3.40	3.65	3.90	4.15	4.40	4.65
4	3.85	4.15	4.45	4.75	5.05	5.35	5.65
4½	4.65	5.00	5.35	5.70	6.05	6.40	6.75
5	5.55	5.95	6.35	6.75	7.15	7.55	7.95
6	7.35	7.90	8.65	9.25	9.85	10.45	11.05
7	9.50	10.20	11.10	11.85	12.65	13.45	14.25
8	12.00	13.00	14.00	15.00	16.00	17.00	18.00
9	14.90	16.15	17.40	18.65	19.90	21.15	22.40
10	18.30	19.90	21.50	23.10	24.70	26.30	27.90
12	24.80	27.10	29.30	31.50	33.70	36.00	38.20
14	32.60	35.20	37.70	40.30	43.20	46.20	49.20
16	41.00	44.50	48.00	51.50	55.00	58.50	62.00
18	53.00	57.50	62.00	66.50	71.00	75.50	80.00
20	65.50	71.00	76.50	82.00	87.50	93.00	98.50
22	78.00	85.00	92.00	99.00	106.00	113.00	120.00
24	94.00	102.00	110.00	118.00	126.00	134.00	142.00
26	111.00	120.00	128.00	137.00	147.00	157.00	167.00
28	129.00	139.00	150.00	160.00	171.00	181.00	192.00
30	146.00	158.00	170.00	182.00	194.00	205.00	216.00
32	172.00	186.00	200.00	214.00	228.00	242.00	253.00
34	198.00	214.00	229.00	245.00	261.00	276.00	292.00
36	226.00	244.00	262.00	280.00	298.00	316.00	334.00

Standard Types of Grinding Wheels

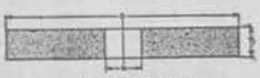
In the interest of standardization and to enable the user to visualize at once the wide range of types of grinding wheels, there are shown cross sections of the nine standard types which are representative of practically all grinding wheels used on the standard makes of grinding machines.

These nine types of wheels are numbered and each dimension designated by letter. The key to the dimension letters is shown below with the illustrations of the nine standard types following.

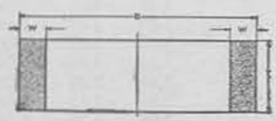
This classification of grinding wheels greatly simplifies the stocking of wheels wherever a quantity is kept on hand. It also enables the user to accurately order a grinding wheel by giving the type number and the complete dimensions necessary to construct such a wheel, as designated by the cross-section of that type.

Key to Letter Dimensions

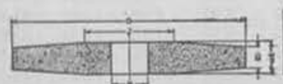
A—Flat spot of beveled wall
D—Diameter (over all)
E—Center of back thickness
F—Depth of recess (see Type 5)
G—Depth of recess (see Type 7)
H—Arbor hole
J—Diameter of flat or small diameter
K—Diameter of flat inside
M—Large diameter of bevel
P—Diameter of recess
R—Radius
T—Thickness (over all)
U—Width of face
V—Angle of bevel
W—Thickness of wall



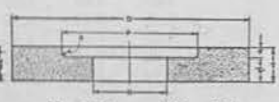
No. 1 Straight



No. 2 Cylinder



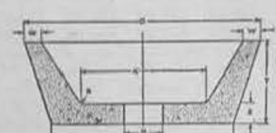
No. 4 Tapered Two Sides



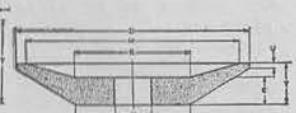
No. 5 Recessed One Side

No. 6 Straight Cup

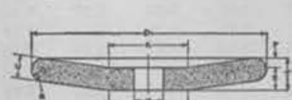
No. 7 Recessed Two Sides



No. 11 Flaring Cup



No. 12 Dish



No. 13 (Saw Gummer) Saucer

Selection of Grades for Different Work

It is more satisfactory in most cases to leave the selection of the grain and grade to the manufacturer after giving as complete detailed description as possible of the requirements. The selection of proper wheels for any operation must be made in a careful manner and can only be correctly done after studying all the factors which have a bearing. The omission from consideration of any one of these factors may result in the wrong wheel being used.

Huntington Emery Wheel Dressers

Standard Type

Dresser Cutters

Hooded Type

Dressers are packed 1 to the carton and have 1 set of cutters in the handle with an extra set in the box.

No.	Length Inches	Each	Size, Cutters, Inches Diameter	Hole
0	11	.90	1⅜	¼
1	12	1.80	1½	½

Huntington Hooded Grinding Wheel Dressers

The dresser should be supported on a work-rest or some other rigid support.

Work-rest should not be too far from wheel. If gap is large, it sometimes happens that wheel drags dresser into gap and an accident results. Dresser should be moved in straight line across face of wheel with heel of dresser resting firmly against edge of work-rest. Appearance of sparks during dressing operation shows that wheel is grinding off teeth of cutters. The remedy is to use more pressure against face of wheel, embedding cutter teeth more firmly into wheel's surface. When dresser is being operated properly, no spark should be seen. Length, 11¾ inches. Diameter cutters, 1⅛ inches.

Prices upon application

Diamond Hand Tools

No.	Price Each	No.	Price Each	No.	Price Each
74A	$4.00	73A	$10.00	72A	$20.00
74B	6.00	73B	15.00	72B	25.00

Diamo-Carbo Grinding Wheel Dressers

It consists of a steel tube entirely filled with an intensely hard abrasive. This tube is kept ground back about ⅛ inch from the abrasive, which will dress and true all wheels up to the hard grades. The Diamo-Carbo Dresser, at a fraction of the cost, attains an efficiency equal to that of the diamond.

The Diamo-Carbo Dresser can be used for all tool room and saw gumming wheels, for rough grinding precision wheels, for hand forming special shapes, and for many other uses where a diamond has heretofore been thought essential.

No.	Diameter Inches	Length Inches	Price Each
3	⅝	10	$3.50
5	⅝	12	4.00

Metcalf Emery Wheel Dressers

For hand use. Prevents chipping or breaking away of the grinding wheel. Adapted for surface and cylindrical grinding.

Price .... each $4.50
" Extra Wheel " 1.15

Prices for dressers for tool post use upon application.

Abrasive Papers and Cloths

Surface Coated Abrasives for all Industries:

Automotive
Railroads
Metal Working
Auto Painting
Electrical Equipment
Furniture
Textile
Leather
Woodworkers
Floor Surfacing
Felt Manufacturers
Shoe Manufacturers

Backings

Paper

A weight—finishing paper, light and flexible.
C weight—cabinet backing on finer numbers.
D weight—cabinet backing on the coarser grades and slightly heavier than C weight.
E weight—the standard weight for roll materials

Cloth

M weight—moulding cloth, light and flexible.
J weight—medium, largely used on flat surfaces.
X weight—heavy.
H weight—extra heavy.

Combination

A backing composed of paper and cloth combined, mainly used by the shoe trade.

Types of Products

Aluminum Oxide

A product of the electric furnace. Particularly suited for hardwood sanding, floor surfacing operations, etc.

Emery

An abrasive for general machine shop and metal sanding.

Flint

A product made from crushed flint quartz. Commonly described as sandpaper; for general household use, also rubbing down operation.

Garnet

A natural mineral universally used for hand and machine sanding of hard and soft woods.

Metal

Signifies an aluminum oxide abrasive product for sanding and polishing the harder metals.

Silicon Carbide

An electric furnace product. Can be used to best advantage on copper, brass, aluminum and leather.

Coatings

Garnet, aluminum oxide, and silicon carbide products are invariably provided in both open coat and close coat types. The general principle being that close coat products being of a more rugged nature stand greater abuse, also wear. Open coat abrasive materials with spaced grain can be employed to advantage where the abrasive fills up or clogs due to an early accumulation of wood dust, varnish, wax, or other similar substances.

Standard Shipping Table

		No. of Reams Per Standard Package									
Grit No.	Mesh No.	Flint Sand Paper 8¾x10½ In.	Garnet Paper 9x11 In.	Garnet Fin. Paper	A.O. Paper 9x11 In.	A.O. Fin. Paper	S.C. Paper 9x11 In. A, C, D Wt.	S.C. Paper 9x11 In. E Wt.	Emery Cloth 9x11 In.	Metal Cloth 9x11 In.	S.C. Cloth 9x11 In.
9/0	320	...	...	..	...	..	...	...	...	2½	...
8/0	280	...	...	..	...	..	...	...	...	...	...
7/0	240	...	...	5	...	5	...	...	...	2½	1
6/0	220	...	...	5	...	5	5	5	...	...	...
5/0	180	...	...	5	...	5	5	5	...	2½	1
4/0	150	5	5	5	5	5	5	4	...	2½	2½
3/0	120	5	5	5	5	5	5	4	2½	2½	2½
2/0	100	5	4	5	4	5	4	4	2½	2½	2½
0	80	5	3½	5	3½	5	3	3	2½	2	2
½	60	4	3	..	3	..	2½	2½	2½	2	1½
1	50	3½	2½	..	2½	..	2	2	2	2	1
1½	40	3	2	..	2	..	2	2	2	1½	1
2	36	2	1½	..	1½	..	...	...	2	1	...
2½	30	2	1	..	1	..	...	...	1½	1	...
3	24	1½	1	..	1	..	...	...	1	1	...
3½	20	...	1	..	1	..	...	...	...	...	...

Comparative Grades

It will be noted from the chart below that the technical products (garnet, aluminum oxide, metal (A.O.) and silicon carbide (S.C.) are all on the same grading structure.
Flint and emery each has its own grading structure.

Garnet Aluminum Oxide Wood-working	Metal (A.O.) Silicon Carbide (S.C.) Metal Working	Flint	Emery	Garnet Aluminum Oxide Wood-working	Metal (A.O.) Silicon Carbide (S.C.) Metal Working	Flint	Emery
10/0–400	400	...	....	½–60	60	...	1½–70
9/0–320	320	...	....	1 –50	50	1½	2 –60
8/0–280	280	...	....	1½–40	40	2-2½	2½–46
7/0–240	240	5/0	....	2 –36	36	...	3 –36
6/0–220	220	4/0	....	2½–30	30	3	......
5/0–180	180	3/0	3/0–180	3 –24	24	3½	3½–24
4/0–150	150	2/0	2/0–150	3½–20	20	...	4 –20
3/0–120	120	0	0–120	4 –16	16	...	......
2/0–100	100	1/2	1/2– 90	4½–12	12	...	......
0– 80	80	1	1– 80	......	..	...	......

Formerly metal (A.O.) products were graded on the emery schedule.

Flint Paper

Price per Ream of 480 Sheets

Size In.	Grit Nos. 4/0-2/0	0	½	1	1½	2	2½	3
8¾x10½	$6.75	6.75	7.20	8.10	9.15	10.35	11.70	13.20

Household Package

Contains 20 sheets sand paper, size 4⅜x5¼ inches. Assorted grades.

1-Gross Cartons....................per gross $9.60
½-Gross Cartons....................per gross 10.00

Slashed Paper
Garnet and Aluminum Oxide

For sanding chair rungs and legs, table legs and any other turned woodwork. The slash makes the paper more pliable. It more easily fits curved surfaces.

Per 50-Foot Rolls

Width Inches	Grit Nos. 2/0 E & Finer	0	½	1	1½
4	$1.85	2.00	2.20	2.40	2.65

Emery Cloth

Price per Ream of 480 Sheets

Size In.	Grit Nos. Crocus & 3/0, 2/0, 0	½	1	1½	2	2½	3
9x11	$30.00	31.20	32.75	34.30	36.50	39.40	42.50

Household Package

Contains 6 sheets of emery cloth, size 4⅜x5¼ inches. Assorted grades.

1-Gross Cartons....................per gross $9.60
½-Gross Cartons....................per gross 10.00

Garnet Paper
A. O. Paper

(Aluminum Oxide Abrasive for Wood Sanding)

S. C. Paper

(Silicon Carbide Abrasive for Metal and Leather Sanding)

Price per Ream of 480 Sheets

Size In.	Grit Nos. 10/0 to 2/0	0	½	1	1½
Mesh Nos.	400 to 100	80	60	50	40
9x11	$22.50	$25.00	$29.00	$33.00	$37.50
9x11½	24.35	26.95	31.15	35.30	40.00
9x12	26.15	28.85	33.25	37.60	42.50
7 Webster	24.10	.....	.....	.....	.....

Size In.	Grit Nos. 2	2½	3	3½
Mesh Nos.	36	30	24	20
9x11	$42.00	$46.50	$51.20	$56.30
9x11½	44.75	49.45	54.25	59.70
9x12	47.40	52.35	57.45	63.00

A, C, D, or E weight backings.

Abrasive Papers and Cloths

Garnet Paper

A.O. Paper

(Aluminum Oxide Abrasive for Wood Sanding)

S.C. Paper

(Silicon Carbide Abrasive for Metal and Leather Sanding)

Price per Roll of 50 Yards

Original Width Inches	Grit No. 10/0 to 2/0 — Mesh No. 400 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50
24	$20.50	$22.70	$26.30	$30.00
30	25.60	28.35	32.85	37.50
36	30.75	34.05	39.45	45.00
42	35.85	39.70	46.00	52.50
48	41.00	45.40	52.60	60.00
Slit Width				
½	$.67	$.72	$.80	$.88
1	1.15	1.25	1.40	1.55
1½	1.60	1.75	2.00	2.25
2	2.10	2.30	2.60	2.95
2½	2.55	2.80	3.20	3.60
2⅝ to 3	3.05	3.35	3.80	4.30
3⅛ to 3½	3.50	3.85	4.40	5.00
4	4.00	4.40	5.00	5.65
5	4.95	5.40	6.20	7.05
6	5.90	6.45	7.40	8.40
7	6.85	7.50	8.60	9.75
8	7.80	8.55	9.85	11.15
9	8.75	9.60	11.05	12.50
10	9.70	10.65	12.25	13.85
12	11.60	12.70	14.65	16.60
14	13.45	14.80	17.05	19.35
15	14.40	15.85	18.25	20.70
16	15.35	16.90	19.45	22.05
18	17.25	19.00	21.85	24.80
20	19.15	21.10	24.30	27.55
26	23.40	25.80	29.70	33.70
27	24.25	26.75	30.80	34.95
31	27.70	30.50	35.20	39.95
40	35.25	38.90	44.90	51.10
44	38.80	42.80	49.40	56.20

Original Width Inches	Grit No. 1½ — Mesh No. 40	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20
24	$34.00	$38.20	$42.30	$46.50	$51.20
30	42.50	47.75	52.85	58.10	64.00
36	51.00	57.30	63.45	69.75	76.80
42	59.50	66.85	74.00	81.40	89.60
48	68.00	76.40	84.60	93.00	102.40
Slit Width					
½	$.97	$1.06	$1.15	$1.25	$1.35
1	1.75	1.90	2.10	2.30	2.50
1½	2.50	2.80	3.05	3.35	3.65
2	3.30	3.65	4.00	4.40	4.80
2½	4.05	4.50	4.95	5.45	5.95
2⅝ to 3	4.85	5.40	5.95	6.50	7.10
3⅛ to 3½	5.60	6.25	6.90	7.55	8.25
4	6.40	7.10	7.85	8.60	9.40
5	7.90	8.85	9.75	10.70	11.70
6	9.45	10.55	11.65	12.80	14.00
7	11.00	12.30	13.55	14.85	16.30
8	12.55	14.05	15.50	16.95	18.60
9	14.10	15.75	17.40	19.05	20.90
10	15.65	17.50	19.30	21.15	23.20
12	18.70	20.95	23.10	25.35	27.80
14	21.80	24.40	26.95	29.55	32.40
15	23.35	26.15	28.85	31.65	34.75
16	24.90	27.85	30.75	33.75	37.05
18	28.00	31.30	34.60	37.90	41.65
20	31.10	34.80	38.40	42.10	46.25
26	38.00	42.55	47.00	51.55	56.65
27	39.45	44.15	48.80	53.50	58.80
31	45.10	50.55	55.85	61.30	67.35
40	57.70	64.70	71.70	78.60	86.40
44	63.50	71.20	78.85	86.45	95.05

Prices for Belts

Method of obtaining prices from table below as follows:

Multiply the gross list price per inch of length by the length of the belt in inches (to the next full inch), then deduct the discount applying to the particular product, and finally add the net joining charge for the particular width of belt.

Belts that can be cut from a sheet 9x11 inches, the joining charge is to be $1.00 per inch of width with a minimum charge of $3.00 per 100.

Gross Price List for Material Only for 100 Belts per Inch of Length of Belt

Width Belt In.	Grit No. 5/0 to 2/0 — Mesh No. 180 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50	Grit No. 1½ — Mesh No. 40	Net Joining Charge per 100 Belts
½	$.038	$.041	$.047	$.051	$.056	$5.00
1	.066	.072	.081	.089	.101	5.00
1½	.092	.101	.115	.130	.144	5.00
2	.121	.132	.150	.171	.191	5.00
2½	.147	.161	.184	.208	.234	*6.25
3	.176	.193	.219	.248	.280	*7.50
3½	.202	.222	.254	.289	.323	8.75
4	.231	.254	.289	.326	.369	10.00
5	.286	.312	.358	.407	.456	12.50
6	.341	.372	.427	.485	.546	15.00
7	.395	.433	.497	.563	.635	17.50
8	.451	.494	.569	.644	.725	20.00
9	.505	.554	.638	.722	.814	22.50
10	.561	.615	.708	.801	.904	25.00
12	.670	.734	.846	.959	1.081	30.00
14	.777	.855	.985	1.118	1.260	35.00
15	.832	.916	1.054	1.196	1.349	37.50
16	.887	.976	1.124	1.274	1.439	40.00
18	.997	1.098	1.262	1.433	1.618	45.00
20	1.106	1.219	1.404	1.592	1.797	50.00
24	1.326	1.459	1.681	1.907	2.153	60.00

Gross Price List for Material Only for 100 Belts per Inch of Length of Belt

Width Belt In.	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20	Net Joining Charge per 100 Belts
½	$.061	$.066	$.072	$.078	$5.00
1	.110	.121	.132	.144	5.00
1½	.161	.176	.193	.211	5.00
2	.211	.231	.254	.277	5.00
2½	.260	.286	.315	.343	*6.25
3	.312	.343	.375	.410	*7.50
3½	.361	.398	.436	.476	8.75
4	.410	.453	.497	.543	10.00
5	.511	.563	.618	.676	12.50
6	.609	.673	.739	.809	15.00
7	.711	.783	.858	.942	17.50
8	.812	.895	.979	1.075	20.00
9	.910	1.005	1.101	1.208	22.50
10	1.011	1.115	1.222	1.341	25.00
12	1.211	1.335	1.465	1.606	30.00
14	1.410	1.557	1.707	1.872	35.00
15	1.511	1.667	1.829	2.008	37.50
16	1.609	1.777	1.951	2.141	40.00
18	1.809	1.999	2.191	2.407	45.00
20	2.011	2.219	2.433	2.673	50.00
24	2.410	2.661	2.918	3.205	60.00

*For belts not over 3 inches wide and not over 36 inches long, the net charge for joining is $5.00 per 100 belts.

Intermediate widths take the next higher list.

Abrasive Papers and Cloths

Garnet Paper Discs
A.O. Paper Discs
(Aluminum Oxide Abrasive for Wood Sanding)

S.C. Paper Discs
(Silicon Carbide Abrasive for Metal and Leather Sanding)
Price per 100 Discs

Diam. In.	Grit No. 10/0 to 2/0 — Mesh No. 400 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50
2	$.65	$.70	$.70	$.75
3	.90	.95	1.05	1.15
3½	1.10	1.15	1.25	1.40
4	1.30	1.40	1.50	1.65
5	1.80	1.95	2.15	2.40
6	2.45	2.65	2.95	3.30
8	4.45	4.80	5.40	6.00
9	5.80	6.25	7.00	7.75
10	7.20	7.75	8.65	9.60
12	10.60	11.45	12.75	14.10
14	15.00	16.10	17.90	19.75
15	17.65	18.90	21.00	23.10
16	20.40	21.80	24.15	26.60
18	25.90	27.70	30.70	33.75
20	31.25	33.50	37.15	40.95
22	36.80	39.50	43.95	48.55
23	39.70	42.65	47.50	52.50
24	42.70	45.95	51.25	56.65
25	45.80	49.35	55.05	60.95
26	48.80	52.60	58.80	65.15
27	51.80	55.90	62.60	69.45
28	55.30	59.70	66.90	74.30
29	58.50	63.25	70.95	78.90
30	61.90	66.95	75.20	83.70
31	65.35	70.75	79.55	88.60
32	69.20	75.00	84.35	94.05
33	72.85	79.00	89.00	99.25
34	76.65	83.15	93.75	104.70
35	80.55	87.40	98.65	110.20
36	84.55	91.80	103.70	115.95
37	88.65	96.35	108.90	121.85
38	92.85	100.95	114.20	127.80
39	97.15	105.70	119.65	134.00
40	101.55	110.50	125.20	140.30
42	110.40	120.30	136.50	153.15
43	115.15	125.55	142.50	159.95
44	119.95	130.85	148.60	166.85
45	124.90	136.30	154.85	173.95
46	129.90	141.80	161.20	181.15
47	135.05	147.50	167.75	188.60
48	140.35	153.30	174.40	196.15

Diam. In.	Grit No. 1½ — Mesh No. 40	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20
2	$.80	$.85	$.90	$.90	$.95
3	1.25	1.35	1.40	1.50	1.60
3½	1.50	1.65	1.75	1.90	2.05
4	1.85	2.00	2.20	2.35	2.55
5	2.65	2.95	3.20	3.45	3.75
6	3.65	4.05	4.45	4.80	5.25
8	6.65	7.35	8.00	8.70	9.45
9	8.55	9.45	10.30	11.15	12.15
10	10.60	11.70	12.75	13.80	15.00
12	15.60	17.15	18.65	20.20	21.90
14	21.75	23.85	25.90	28.00	30.35
15	25.40	27.80	30.20	32.60	35.30
16	29.20	31.95	34.60	37.35	40.45
18	37.05	40.50	43.90	47.40	51.25
20	45.05	49.30	53.50	57.80	62.60
22	53.45	58.65	63.70	68.90	74.70
23	57.90	63.60	69.15	74.80	81.15
24	62.55	68.70	74.75	80.90	87.85
25	67.35	74.05	80.60	87.30	94.80
26	72.05	79.30	86.40	93.60	101.75
27	76.90	84.70	92.35	100.15	108.90
28	82.25	90.65	98.90	107.30	116.70
29	87.45	96.45	105.30	114.30	124.40
30	92.90	102.50	111.95	121.60	132.40
31	98.40	108.70	118.80	129.05	140.60
32	104.50	115.45	126.20	137.15	149.45
33	110.35	122.05	133.45	145.10	158.15
34	116.45	128.85	141.00	153.35	167.20
35	122.70	135.85	148.70	161.80	176.50
36	129.15	143.05	156.65	170.50	186.05
37	135.80	150.45	164.80	179.45	195.90
38	142.55	158.00	173.15	188.60	205.95
39	149.50	165.80	181.75	198.05	216.30
40	156.60	173.75	190.55	207.65	226.85
42	171.15	190.05	208.55	227.40	248.60
43	178.80	198.60	218.00	237.80	260.00
44	186.60	207.35	227.65	248.35	271.60
45	194.60	216.30	237.55	259.20	283.50
46	202.75	225.40	247.60	270.25	295.65
47	211.10	234.80	257.95	281.60	308.10
48	219.65	244.35	268.50	293.15	320.80

Intermediate sizes take next higher list.

*Garnet Combination Rolls *Garnet Cloth Rolls
*A.O. Cloth and *Combination Rolls
(Aluminum Oxide Abrasive for Wood Sanding)

†Metal Cloth Rolls
(Aluminum Oxide Abrasive for Metal Sanding)

†S.C. Cloth and *Combination Rolls
(Silicon Carbide Abrasive for Metal and Leather Sanding)
Price per Roll of 50 Yards

Original Width Inches	Grit No. 9/0 to 2/0 — Mesh No. 320 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50	Grit No. 1½ — Mesh No. 40
*24	$49.80	$52.80	$57.40	$61.50	$66.00
28	58.00	61.60	66.90	71.70	77.00
Slit Width					
½	$1.30	$1.40	$1.50	$1.60	$1.70
1	2.45	2.55	2.80	2.95	3.15
1½	3.55	3.75	4.05	4.35	4.65
2	4.70	4.95	5.35	5.70	6.10
2½	5.80	6.15	6.65	7.10	7.60
3	6.90	7.30	7.95	8.45	9.05
3½	8.05	8.50	9.20	9.85	10.55
4	9.15	9.70	10.50	11.25	12.00
5	11.40	12.05	13.10	14.00	15.00
6	13.65	14.45	15.65	16.75	17.95
7	15.90	16.80	18.25	19.50	20.90
8	18.15	19.20	20.80	22.25	23.85
9	20.35	21.55	23.40	25.00	26.80
10	22.60	23.95	25.95	27.80	29.75
12	27.10	28.70	31.10	33.30	35.65
14	31.55	33.40	36.30	38.80	41.60
15	33.80	35.80	38.85	41.55	44.55
16	36.05	38.15	41.45	44.35	47.50
18	40.55	42.90	46.60	49.85	53.40
20	45.00	47.65	51.75	55.35	59.30
†24	53.70	56.85	61.65	66.20	71.00
30	63.45	67.20	72.95	78.10	83.70

Original Width Inches	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20	Grit No. 4 — Mesh No. 16
*24	$71.20	$76.30	$81.60	$87.80	$92.70
28	83.00	90.00	95.20	102.30	109.20
Slit Width					
½	1.80	$1.90	$2.00	$2.15	$2.25
1	3.40	3.60	3.85	4.10	4.35
1½	5.00	5.30	5.65	6.10	6.40
2	6.55	7.00	7.50	8.05	8.45
2½	8.15	8.75	9.30	10.00	10.55
3	9.75	10.45	11.15	11.95	12.60
3½	11.35	12.15	12.95	13.90	14.70
4	12.95	13.85	14.80	15.90	16.75
5	16.15	17.25	18.45	19.80	20.90
6	19.30	20.65	22.05	23.70	25.00
7	22.50	24.10	25.70	27.65	29.15
8	25.70	27.50	29.35	31.55	33.30
9	28.85	30.90	33.00	35.45	37.40
10	32.05	34.30	36.65	39.40	41.55
12	38.45	41.15	43.95	47.25	49.85
14	44.80	47.95	51.25	55.05	58.10
15	48.00	51.35	54.90	59.00	62.25
16	51.20	54.80	58.50	62.90	66.40
18	57.55	61.60	65.80	70.75	74.65
20	63.90	68.40	73.10	78.60	82.90
†24	76.30	82.75	87.80	93.80	100.00
30	90.20	96.60	103.20	110.95	117.10

Note variation in 24-inch lists.

When sanding metals, Metal Cloth is recommended for the harder metals such as steel, cast iron, wrought iron, etc. On metals of low tensile strength such as copper, brass, and aluminum, and on leather or marble, Silicon Carbide goods are especially recommended.

Abrasive Papers and Cloths

Garnet Combination — Garnet Cloth

A.O. Cloth and Combination

(Aluminum Oxide Abrasive for Wood Sanding)

Metal Cloth

(Aluminum Oxide Abrasive for Metal Sanding)

S.C. Cloth and Combination

(Silicon Carbide Abrasive for Metal and Leather Sanding)

Prices for Belts

Method of obtaining prices from table below as follows:

Multiply the gross list price per inch of length by the length of the belt in inches (to the next full inch), then deduct the discount applying to the particular product, and finally add the net joining charge for the particular width of the belt.

Belts that can be cut from a sheet 9x11 inches, the joining charge is to be $1.00 per inch of width with a minimum charge of $3.00 per 100.

Gross Price List For Material Only For 100 Belts Per Inch of Length of Belt

Width Belt In.	Grit No. 9/0 to 2/0 — Mesh No. 320 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50	Grit No. 1½ — Mesh No. 40	Net Joining Charge per 100 Belts
½	$.075	$.081	$.086	$.092	$.098	$5.00
1	.141	.147	.161	.171	.182	5.00
1½	.205	.216	.234	.251	.268	5.00
2	.271	.286	.309	.329	.352	5.00
2½	.335	.355	.384	.410	.439	*6.25
3	.398	.421	.459	.488	.523	*7.50
3½	.465	.491	.531	.569	.609	8.75
4	.528	.561	.606	.650	.693	10.00
5	.658	.696	.757	.809	.867	12.50
6	.788	.835	.904	.968	1.037	15.00
7	.919	.971	1.054	1.127	1.208	17.50
8	1.049	1.109	1.202	1.286	1.378	20.00
9	1.176	1.245	1.352	1.445	1.549	22.50
10	1.306	1.384	1.499	1.606	1.719	25.00
12	1.566	1.658	1.797	1.924	2.061	30.00
14	1.823	1.931	2.098	2.242	2.404	35.00
15	1.953	2.069	2.245	2.401	2.574	37.50
16	2.083	2.205	2.395	2.563	2.745	40.00
18	2.343	2.479	2.693	2.881	3.086	45.00
20	2.601	2.754	2.991	3.199	3.427	50.00
24	2.878	3.051	3.317	3.554	3.814	60.00

Gross Price List For Material Only For 100 Belts Per Inch of Length of Belt

Width Belt In.	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20	Grit No. 4 — Mesh No. 16	Net Joining Charge per 100 Belts
½	$.104	$.109	$.115	$.124	$.130	$5.00
1	.196	.208	.222	.236	.251	5.00
1½	.289	.306	.326	.352	.369	5.00
2	.378	.404	.433	.465	.488	5.00
2½	.471	.505	.537	.578	.609	*6.25
3	.563	.604	.644	.691	.728	*7.50
3½	.656	.702	.748	.803	.849	8.75
4	.748	.801	.855	.919	.968	10.00
5	.933	.997	1.066	1.144	1.208	12.50
6	1.115	1.193	1.274	1.369	1.445	15.00
7	1.301	1.392	1.485	1.598	1.684	17.50
8	1.485	1.589	1.696	1.823	1.924	20.00
9	1.667	1.785	1.907	2.049	2.161	22.50
10	1.852	1.982	2.118	2.277	2.401	25.00
12	2.222	2.378	2.540	2.731	2.881	30.00
14	2.589	2.771	2.962	3.181	3.358	35.00
15	2.774	2.968	3.173	3.410	3.598	37.50
16	2.959	3.167	3.381	3.635	3.837	40.00
18	3.326	3.560	3.803	4.089	4.314	45.00
20	3.693	3.953	4.225	4.543	4.791	50.00
24	4.115	4.410	4.716	5.074	5.358	60.00

*For belts not over 3 inches wide and not over 36 inches long, the net charge for joining is $5.00 per 100 belts.

Intermediate widths take the next higher list.

Price per 100 Discs

Diam. In.	Grit No. 9/0 to 2/0 — Mesh No. 320 to 100	Grit No. 0 — Mesh No. 80	Grit No. ½ — Mesh No. 60	Grit No. 1 — Mesh No. 50	Grit No. 1½ — Mesh No. 40
2	$.95	$1.00	$1.05	$1.10	$1.15
3	1.60	1.65	1.75	1.85	1.95
3½	2.00	2.10	2.25	2.35	2.50
4	2.50	2.60	2.80	2.95	3.15
5	3.65	3.85	4.15	4.40	4.70
6	5.10	5.40	5.80	6.20	6.60
8	9.25	9.70	10.45	11.15	11.85
9	11.85	12.45	13.40	14.25	15.20
10	14.65	15.40	16.60	17.65	18.80
12	21.40	22.50	24.20	25.70	27.35
14	29.65	31.15	33.45	35.50	37.75
15	34.45	36.20	38.85	41.20	43.75
16	39.50	41.45	44.45	47.15	50.10
18	50.10	52.55	56.35	59.75	63.50
20	61.15	64.20	68.90	73.10	77.65
22	72.95	76.65	82.35	87.40	92.95
23	79.25	83.25	89.50	95.00	101.10
24	85.75	90.15	96.90	102.95	109.55
25	92.50	97.30	104.65	111.15	118.35
26	99.30	104.45	112.40	119.45	127.20
27	106.30	111.85	120.40	128.00	136.40
28	113.85	119.85	129.05	137.25	146.25
30	129.15	136.05	146.60	156.00	166.30

Diam. In.	Grit No. 2 — Mesh No. 36	Grit No. 2½ — Mesh No. 30	Grit No. 3 — Mesh No. 24	Grit No. 3½ — Mesh No. 20	Grit No. 4 — Mesh No. 16
2	$1.20	$1.25	$1.30	$1.35	$1.40
3	2.10	2.20	2.30	2.45	2.60
3½	2.65	2.85	3.00	3.20	3.35
4	3.35	3.55	3.80	4.05	4.25
5	5.05	5.35	5.70	6.10	6.40
6	7.10	7.55	8.05	8.60	9.05
8	12.70	13.55	14.40	15.45	16.25
9	16.25	17.30	18.40	19.70	20.70
10	20.10	21.40	22.75	24.35	25.60
12	29.25	31.10	33.05	35.35	37.15
14	40.35	42.90	45.55	48.65	51.10
15	46.75	49.70	52.70	56.30	59.10
16	53.50	56.80	60.25	64.30	67.50
18	67.80	72.00	76.35	81.50	85.55
20	82.95	88.15	93.60	99.90	104.90
22	99.40	105.65	112.20	119.85	125.90
23	108.10	114.95	122.10	130.50	137.10
24	117.20	124.65	132.45	141.55	148.75
25	126.65	134.75	143.20	153.10	180.90
26	136.20	144.95	154.11	164.80	173.25
27	146.05	155.55	165.40	176.90	186.00
28	156.65	166.85	177.45	189.85	199.60
30	178.25	189.95	202.10	216.35	227.60

Intermediate sizes take the next higher list.

Abrasive Papers and Cloths

Metal Cloth

(Aluminum Oxide Abrasive for Metal Sanding)

S.C. Cloth and Combination

(Silicon Carbide Abrasive for Leather Sanding)

Price per Ream of 480 Sheets

Size Sheets In.	Mesh No. 320 to 100	80	60	50	40	35	30	24	20
9x11	$54.70	58.10	63.10	67.60	72.70	78.40	84.00	90.00	96.50

Metal Cloth—Handy Rolls

(Aluminum Oxide Abrasive for Metal Sanding)

Price per Roll of 50 Yards

Width In.	Mesh No. 320,240 to 180	100	80	60	50	40	36	30	24
½	$1.75	$1.85	$1.95	$2.05	$2.15	$2.25	$2.35	$2.45	
¾	2.35	2.45	2.60	2.70	2.85	3.05	3.20	3.40	
1	2.90	3.00	3.25	3.40	3.60	3.85	4.05	4.30	
1½	4.05	4.20	4.50	4.80	5.10	5.45	5.75	6.10	
2	5.15	5.40	5.80	6.15	6.55	7.00	7.45	7.95	

Metal cloth handy rolls are very popular with the garage trade.

Metal Cloth Discs

(Aluminum Oxide)

Grinding Weight

Price per Disc

Diam. In.	Mesh No. 120	80	60	40	30	20	16
4	$.08	$.08	$.08	$.09	$.10	$.10	$.12
5	.09	.10	.11	.12	.13	.14	.16
6	.12	.13	.14	.15	.17	.19	.21
8	.19	.20	.22	.24	.28	.31	.36
9	.23	.24	.27	.30	.34	.38	.44
10	.28	.30	.33	.36	.41	.46	.54
12	.38	.41	.44	.50	.57	.64	.76
15	.56	.61	.67	.75	.87	.98	1.16
18	.79	.86	.94	1.06	1.23	1.39	1.65
20	.98	1.06	1.16	1.31	1.52	1.72	2.04
23	1.28	1.39	1.53	1.73	1.99	2.26	2.68
24	1.39	1.51	1.66	1.88	2.17	2.46	2.91
26	1.61	1.75	1.93	2.18	2.53	2.87	3.40
30	2.12	2.31	2.54	2.88	3.33	3.79	4.50

Intermediate sizes take next higher list.

Metal Fibre Back Discs

(Aluminum Oxide)

Price per 100 Discs

Diam. In.	Mesh No. 120 & 80	60	50	36	30	24	16
7	$19.70	$20.90	$22.00	$23.55	$23.80	$24.05	$30.95
9⅛	26.25	27.90	29.30	31.35	31.75	32.05	41.25

Waterproof Abrasive Paper

Price per Ream of 480 Sheets

Size Sheets In.	Grit No. 400A	360A	320 A & C	280 A & C	240 A & C	220 A & C
9x11	$30.00	30.00	30.00	30.00	30.00	30.00

Size Sheets In.	Grit No. 180C	150C	120D	100D	60D
9x11	$30.00	32.00	34.00	39.50	52.50

Disc Wheel Cement

This cement is prepared ready for instant use without heating, and offers a quick and most economical method of mounting grinding discs on steel disc wheels.

Complete directions for use on every can.

Furnished in gallon cans only.

Per Gallon..... $2.00

Crocus Cloth

In Sheets—9x11 Inches

Made in only one degree of fineness. Used for final polishing operation and for cleaning where the cutting away of the metal would be objectionable.
Per Ream..... $30.00

STEEL WOOL

1 POUND TUBE

One continuous heavy skein of BULL DOG STEEL WOOL. The highest quality of steel wool made from special high grade steel wire by the BULL DOG process which permits long, strong, uniform and keen cutting strands. Recommended for industrial use such as furniture factories, bowling alleys, floor finishers, etc., where large pads are necessary on machines.

Per lb.	0000	000	00	0 or 1	2 or 3
List	$ .54	.46	.34	.24	.23

16 LARGE PADS

This modern method of packaging BULL DOG Steel Wool in pads ready for use is recommended wherever it is to be used by hand. These pads are especially made so that they may be unrolled and two or more folded together to obtain a pad of any desired size. Packed in all grades.

Per Pckg.	0000	000	00	0 or 1	2 or 3
List	.52	.46	.34	.24	.23

BOND STATIONARY TRUCK CASTERS

1-A SERIES—(Illustrated) Equipped with Plain Bearing Semi-Steel Wheels.
Sizes 1-A-2 to 1-A-6 inclusive have riveted axles.
Sizes 1-A-7 and larger have cotter pin axles.

301-A SERIES—(Illustrated) Equipped with Solid Rubber Wheels, Self Lubricating Bushed.

501-A SERIES—Equipped with Plain Bearing Vulcanized on Soft Rubber Tread Wheels. A T-head cotter pin axle is used.

The 1-A SERIES Stationary Casters are designed for industrial uses which call for Regular Duty Stationary Casters. For Heavy Duty Work refer to the **2-A** Stationary Series

The Casters in this **1-A** Series are constructed with one piece Semi-Steel frames having generous reinforced sections. Vertical ribs along the sides of the frames greatly increase the strength of the Casters and every other detail of construction has been worked out to insure superior service and efficiency.

These casters may be procured with different types of wheels such as Semi-Steel, Rubber Tread, Aluminum Alloy, Plain or Roller Bearing, equipped with or without Thread Guards.

CASTER LIST PRICES AND CODE

1-A SERIES with Plain Bearing Semi-Steel Wheels.			**101-A SERIES** with Roller Bearing Semi-Steel Wheels.			**301-A SERIES** with Solid Rubber Wheels Self Lubricating Bushed.			**501-A SERIES** with Plain Bearing Vulcanized-on Soft Rubber Tread Wheels			**601-A SERIES** with Plain Bearing Vulcanized-on Hard Rubber Tread Wheels.		
Caster No.	List Each	Code	Caster No.	List Each	Code	Caster No.	List Each	Code	Caster No.	List Each	Code	Caster No.	List Each	Code
1-A-2	$ .45	cbkam				301-A-2	$ .90	rgnam						
1-A-2½	.60	cbkbn	101-A-2½	$1.90	ckdbn	301-A-2½	1.50	rgnbn						
1-A-3	.70	cbkco	101-A-3	2.05	ckdco	301-A-3	1.65	rgnco						
1-A-3½	.90	cbkdq	101-A-3½	2.35	ckddq	301-A-3½	2.15	rgndq	*501-A-4	$ 4.25	rhnfu	*601-A-4	$ 5.60	rkqfu
1-A-4	1.05	cbkfu	101-A-4	2.60	ckdfu	301-A-4	2.35	rgnfu	*501-A-5	5.00	rhnhy	*601-A-5	6.40	rkqhy
1-A-4½	1.50	cbkgx	101-A-4½	3.40	ckdgx	301-A-5	3.65	rgnhy	*501-A-5S	5.00	rhnpf	*601-A-5S	6.40	rkqpf
1-A-5	1.65	cbkhy	101-A-5	3.60	ckdhy	301-A-6	5.65	rgnia	*501-A-5T	5.00	rhnva	*601-A-5T	6.40	rkqva
1-A-5S	1.65	cbkpf	101-A-5T	3.60	ckdva	301-A-8	12.30	rgnnd	*501-A-6	5.50	rhnia	*601-A-6	7.00	rkqia
1-A-5T	1.65	cbkva	101-A-6	4.85	ckdia	301-A-8S	12.80	rxpim	*501-A-8	9.20	rhnnd	*601-A-8	10.95	rkqnd
1-A-6	2.45	cbkia	101-A-7	7.05	ckdkc				*501-A-8S	10.20	rhnim	*601-A-8S	11.95	rkqim
1-A-7	4.25	cbkkc	101-A-7½	8.85	ckdqg									
1-A-7½	5.50	cbkqg	101-A-8	11.50	ckdnd									
1-A-8	7.00	cbknd	101-A-8S	12.00	ckdim									
1-A-8S	7.50	cbkim	101-A-9	13.50	ckdwm									
1-A-9	9.00	cbkwm												

DIMENSIONS

Caster Size Inches	Size of Semi-Steel Wheel Inches	Size of Plate Inches L. - W.	Plate Holes Inches C. to C.	Diameter Plate Bolts Inches	Overall Height Inches	Weight Each Pounds	Load Capacity each with Semi-Steel Wheel Pounds
2	2 x ¾	2¾ x 1 11/16	2⅛ x 1 1/16	5/16	2⅜	⅞	175
2½	2½ x 1	3⅝ x 2⅜	2¾ x 1¾	¼	2 11/16	1⅝	250
3	3 x 1¼	4¼ x 2⅞	3 5/16 x 1⅜	5/16	3¾	2⅞	350
3½	3½ x 1½	5 x 3⅛	3⅞ x 1 11/16	⅜	4¼	3⅞	400
4	4 x 1½	5 x 3½	3⅞ x 1 11/16	⅜	4½	4½	425
4½	4½ x 1⅝	5¾ x 3¾	4 7/16 x 2	½	5¼	5¾	500
5	5 x 1⅝	5¾ x 3¾	4 7/16 x 2	½	5½	6½	550
5S	5 x 1⅝	5¾ x 3⅝	4 7/16 x 2	½	5¾	7	550
5T	5 x 1⅝	5¾ x 3⅝	4 7/16 x 2	½	5¾	8	550
6	6 x 1⅞	6½ x 4	5 x 2¼	½	6⅞	8⅞	675
7	7 x 2⅜	7½ x 4½	6 x 3	½	7 11/16	14	700
7½	7½ x 2⅜	7½ x 4½	6 x 3	½	8 5/16	15¾	800
8	8 x 2½	9 x 5	7½ x 3½	½	9	24	900
8S	8 x 2½	9¼ x 5⅜	7½ x 3½	½	10½	27	900
9	9 x 2½	10½ x 5¼	8¾ x 3½	⅝	10½	28½	950

LUBRICATION IS IMPORTANT

Lubricate your casters before you put them in service and see that they are lubricated at regular intervals. This practice will insure long life and easy operation.

BOND SINGLE BALL RACE SWIVEL TRUCK CASTERS

3-A SERIES—(Illustrated) Equipped with Plain Bearing Semi-Steel Wheels.

303-A SERIES—(Illustrated) Equipped with Solid Rubber Wheels Self-Lubricating Bushed.

203-A SERIES—Equipped with Roller Bearing Semi-Steel Wheels and Thread Guards.

The 3-A SERIES Swivel Casters, unusually sturdy, efficient and inexpensive, are made of Semi-Steel and designed with exceptionally large diameter Single Ball Races placed to adequately carry the load and absorb side thrusts.

The king pin is electrically heated and riveted on all sizes except the 8″ size in which a threaded king bolt is used.

CASTER LIST PRICES AND CODE

3-A SERIES with Plain Bearing Semi-Steel Wheels.

Caster No.	List Each	Code
3-A-2	$ .60	chbam
3-A-2½	.75	chbbn
3-A-3	1.10	chbco
3-A-3S	1.10	chboe
3-A-3½	1.40	chbdq
3-A-4	1.55	chbfu
3-A-4S	1.55	chbjw
3-A-5	2.55	chbhy
3-A-6	3.75	chbia

103-A SERIES with Roller Bearing Semi-Steel Wheels.

Caster No.	List Each	Code
103-A-2½	$2.40	cksbn
103-A-3	2.60	cksco
103-A-3S	2.60	cksoe
103-A-3½	3.10	cksdq
103-A-4	3.25	cksfu
103-A-4B	3.25	ckskn
103-A-4S	3.25	cksjw
103-A-5	4.10	ckshy
103-A-6	5.50	cksia
*103-A-8	11.85	cksnd

203-A SERIES with Roller Bearing Semi-Steel Wheels and Thread Guards.

Caster No.	List Each	Code
203-A-3	$2.85	cltco
203-A-3S	2.85	cltoe
203-A-3½	3.75	cltdq
203-A-4	3.90	cltfu
203-A-4-B	3.90	cltkn
203-A-4-S	3.90	cltjw
203-A-5	4.85	clthy
203-A-6	6.45	cltia

303-A SERIES with Solid Rubber Wheels Self-Lubricating Bushed.

Caster No.	List Each	Code
303-A-2	$1.05	rofam
303-A-2½	1.65	rofbn
303-A-3	2.05	rofco
303-A-4	2.85	roffu
303-A-5	4.55	rofhy
303-A-6	6.95	rofia

403-A SERIES with Plain Bearing Semi-Steel Wheels and Thread Guards.

Caster No.	List Each	Code
403-A-2	$1.10	cutam
403-A-2½	1.35	cutbn
403-A-3	1.80	cutco
403-A-3½	2.20	cutdq
403-A-4	2.45	cutfu
403-A-5	3.60	cuthy
403-A-6	5.00	cutia

903-A SERIES with Aluminum Alloy Wheels, Bronze Bushed.

Caster No.	List Each	Code
903-A-2½	$2.70	cmubn
903-A-3	3.25	cmuco
903-A-3-S	3.25	cmuoe
903-A-4	3.60	cmufu
903-A-4-B	3.60	cmukn
903-A-4-S	3.60	cmyjw
903-A-5	5.65	cmuhy
903-A-6	8.45	cmuia

1003-A SERIES with Pin Roller Bearing Semi-Steel Wheels.

Caster No.	List Each	Code
1003-A-3½	$2.00	cowdq
1003-A-4	2.10	cowfu
1003-A-4-B	2.10	cowkn
1003-A-4-S	2.10	cowjw

1303-A SERIES with Roller Bearing Solid Rubber Wheels.

Caster No.	List Each	Code
1303-A-4	$3.80	rntfu
1303-A-4-B	3.80	rntkn
1303-A-4-S	3.80	rntjw
1303-A-5	5.00	rnthy
1303-A-6	7.00	rntia

1903-A SERIES with Roller Bearing Aluminum Alloy Wheels.

Caster No.	List Each	Code
1903-A-2½	$4.00	cnvbn
1903-A-3	4.60	cnvco
1903-A-3-S	4.60	cnvoe
1903-A-4	5.00	cnvfu
1903-A-4-B	5.00	cnvkn
1903-A-4-S	5.00	cnvjw
1903-A-5	7.35	cnvhy
1903-A-6	10.40	cnvia

4303-A SERIES with Solid rubber wheels self lubricating bushed & thread guards.

Caster No.	List Each	Code
4303-A-3	$1.75	ripco
4303-A-3S	1.75	ripoe
4303-A-4	2.50	ripfu
4303-A-4-B	2.50	ripkn
4303-A-4-S	2.50	ripjw
4303-A-5	4.25	riphy
4303-A-6	5.95	ripia

DIMENSIONS

Caster Size Inches	Size of Wheels in Inches: Semi-Steel	Aluminum Alloy	Solid Rubber Hard or Soft Tread	Size of Plate Inches L.-W.	Plate Holes Inches C. to C.	Dia. Plate Bolts Inches	Overall Height Inches	Weight Each Pounds	Load Capacity Each in Pounds With: Semi-Steel Wheel	Aluminum Alloy Wheel	Solid Rubber Wheel: Soft Tread	Solid Rubber Wheel: Hard Tread
2	2 x 3/4		2 x 11/16	3 3/16 x 2 7/16	2 7/16 x 1 11/16	1/4	2 15/16	1 3/8	150		75	125
2½	2½ x 1	2½ x 1	2½ x 1	3 3/4 x 3 1/16	2 7/8 x 2 3/16	1/4	3 3/4	2 1/2	175	175	85	175
3	3 x 1 1/4	3 x 1 1/4	3 x 1 1/4	4 3/16 x 3 1/4	3 5/16 x 2 3/8	5/16	4 1/4	3 7/8	225	225	110	200
3S	3 x 1 1/4	3 x 1 1/4	3 x 1 1/4	4 3/4 x 3	3 7/8 x 2 1/8	1/4	4 1/4	4	225	225	110	200
3½	3½ x 1 1/2			4 3/4 x 3 3/4	3 11/16 x 2 11/16	3/8	5	5 7/8	275			
4	4 x 1 1/2	4 x 1 1/2	4 x 1 3/8	4 3/4 x 3 3/4	3 11/16 x 2 11/16	3/8	5 1/4	6 1/2	300	300	160	300
4B	4 x 1 1/2	4 x 1 1/2	4 x 1 3/8	5 x 3 3/4	3 7/8 x 2 1/8	3/8	5 1/4	6 1/2	300	300	160	300
4S	4 x 1 1/2	4 x 1 1/2	4 x 1 3/8	5 1/8 x 3 3/4	4 x 2 1/16	3/8	5 1/4	6 1/2	300	300	160	300
5	5 x 1 5/8	5 x 1 5/8	5 x 1 1/2	5 7/8 x 4 1/4	4 9/16 x 2 15/16	1/2	6 5/8	9 1/2	325	325	220	400
6	6 x 1 7/8	6 x 1 7/8	6 x 2	7 1/4 x 5 1/4	5 7/8 x 3 7/8	1/2	7 11/16	14 3/8	350	350	300	475
8	8 x 2 1/2			10 x 7 7/8	8 x 5 5/8	5/8	10 1/2	42 1/2	800			

BOND SINGLE BALL RACE SWIVEL TRUCK CASTERS

For Heavy Duty

4-A SERIES with Plain Bearing Semi-Steel Wheels.			DIMENSIONS		
Caster No.	List Each	Code	Caster Size Inches	Size Semi-Steel Wheel Inches	Load Capacity each in Lbs.
4-A-3S	$2.00	cjcoe	3S	3 x 1 3/8	275
4-A-3	2.00	cjcco	3	3 x 2	350
4-A-4	2.90	cjcfu	4	4 x 2 1/8	400
4-A-5	4.55	cjchy	5	5 x 2 1/2	450
4-A-6	5.95	cjcia	6	6 x 2 3/4	550

BOND DOUBLE BALL RACE SWIVEL TRUCK CASTERS

The 23-A SERIES Caster is sturdily constructed and is recommended for general factory purposes where Casters are in constant service and a letdown would seriously affect production. For heavy duty service refer to **25-A Series**

These Casters may be procured with different types of wheels such as Semi-Steel, Rubber Tread, Aluminum Alloy, Plain or Roller Bearing, equipped with or without Thread Guards.

Patented

CASTER LIST PRICES AND CODE

23-A SERIES with Plain Bearring Semi-Steel Wheels.			**123-A SERIES** with Roller Bearing Semi-Steel Wheels.			**323-A SERIES** with Solid Rubber Wheels, Self Lubricating Bushed.		
Caster No.	List Each	Code	Caster No.	List Each	Code	Caster No.	List Each	Code
23-A-2	$ .95	cdnam				323-A-2	$1.45	rcuam
23-A-2½	1.30	cdnbn	123-A-2½	$2.70	ceobn	323-A-2½	2.10	rcubn
23-A-3	1.65	cdnco	123-A-3	3.05	ceoco	323-A-3	2.60	rcuco
23-A-3½	2.25	cdndq	123-A-3½	3.75	ceodq	323-A-4	3.65	rcufu
23-A-4	2.35	cdnfu	123-A-4	3.95	ceofu	*323-A-5	5.15	rcuhy
23-A-5	3.35	cdnhy	123-A-5	5.05	ceohy	323-A-6	7.75	rcuia
*23-A-6	4.85	cdnia	*123-A-6	6.55	ceoia			
*23-A-8	9.45	cdnnd	*123-A-8	12.80	ceond			

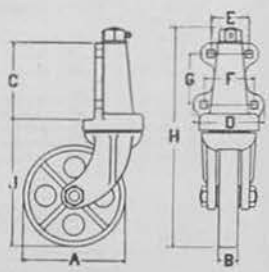
DIMENSIONS

Caster Size Inches	Size of Semi-Steel Wheel Inches	Size of Plate Inches L.-W.	Plate Holes Inches C. to C.	Dia. Plate Bolts Inches	Overall Height Inches	Weight Each Pounds Semi-Steel Wheel	Load Capacity Each with Semi-Steel Wheel Pounds
2	2 x ¾	3¾ x 2¾	2⅞ x 1⅞	¼	2 15/16	2	225
2½	2½ x 1	4⅝ x 3⅜	3½ x 2¼	5/16	3¾	3⅝	350
3	3 x 1¼	5⅛ x 3⅞	3⅞ x 2⅝	⅜	4½	5⅝	425
3½	3½ x 1½	5¾ x 4¼	4½ x 3	⅜	5½	8	525
4	4 x 1½	5¾ x 4¼	4½ x 3	⅜	5¾	8½	550
5	5 x 1⅝	6½ x 5	5 x 3½	½	6⅞	13½	600
6	6 x 1⅞	7 x 5½	5½ x 4	½	8 5/16	18½	650
8	8 x 2½	10 x 7⅞	8 x 5⅞	⅝	10½	40	900

BOND SWIVEL STEM CASTERS

Bond 15-D Series Stem Casters, made of Semi-Steel, swivel freely on a row of Ball Bearings. The 34-D-6 Caster has same construction as the 15-D Series but is Plain Bearing instead of Ball Bearing at base of the stem.

15-D and 34-D SERIES—Equipped with Plain Bearing Wheels and removable steel axles fitted with nuts and lock washers.



The above drawing shows details of Bond Ball Bearing Stem Casters.

Caster No.	List Each	Code	A	B	C	D	E	F	G	H	J	Dia. of Axle Inches	Dia. Plate Bolts Inches	Wt. Ea. Pounds	Load Capacity Each In Pounds
15-D-6	$4.45	czyia	6	1¼	4½	4¾	2⅜	3½	3	13	7½	⅝	⅜	14¼	600
15-D-6S	5.55	czyvl	6	1⅞	4½	4⅜	2⅜	3⅛	3	14⅛	8⅝	⅝	⅜	19	1000
15-D-9	6.25	czywm	9	1½	5¾	4⅞	3¼	3½	3 15/16	18	11	¾	7/16	26½	1500
15-D-9S	6.95	czylp	9	1½	5¾	6¼	3⅝	4⅝	3¼	17½	11	¾	7/16	27¾	1500
34-D-6	4.35	crzia	6	1⅜	4 15/16	4¾	4¼	3¼	3⅛	15	9⅝	½	½	18	600

NOTE:—34-D-6 is Plain Bearing Swivel.

BOND PRESSED STEEL SWIVEL TRUCK CASTERS

BOND LES-NOIS STEEL STATIONARY TRUCK CASTERS

BOND BREAD RACK SWIVEL CASTERS

BOND TRIPLE BALL RACE SWIVEL TRUCK CASTERS

BOND DOUBLE WHEEL CASTER

DARNELL *Institutional* CASTERS

These Models have innumerable uses but are particularly suitable for Dressing Trays, Small Tray Trucks, Garment racks and similar equipment.

3", 4" & 5" INSTITUTIONAL SWIVEL CASTERS WITH REPLACEABLE RUBBER WHEELS

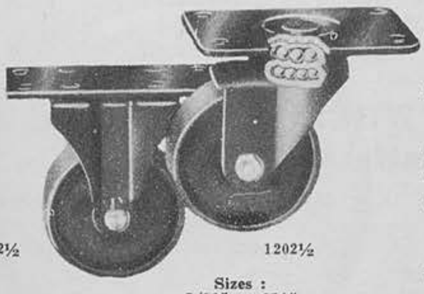
Capacity 100 lbs. each

MODEL No.	WHEEL SIZE	TREAD MATERIAL	WHEEL BEARINGS	APPROX. OVERALL HEIGHT	FINISH	No. SETS STAN. CASE	LBS. CASE	LIST SET 4
12-12FK	3" x ¾"	Rubber Fibre	Hardened Steel	4"	Aluminum	100	426	$6.00
12-12-D	3" x ¾"	Duplex Rubber	Hardened Steel	4"	Laquer	100	426	6.00
U-12-12-H	3" x ¾"	Hard R. Fibre	Oilless	4"	over	100	426	6.00
12-15-FK	4" x ¾"	Rubber Fibre	Hardened Steel	5"	Cadmium	75	370	6.70
12-15-D	4" x ¾"	Duplex Rubber	Hardened Steel	5"	Plate	75	370	6.70
U-12-15-H	4" x ¾"	Hard R. Fibre	Oilless	5"	Rust	75	370	6.70
U-12-17-D	5" x ⅞"	Duplex Rubber	Oilless	6"	Proof	65	425	8.00
U-12-17-H	5" x ⅞"	Hard R. Fibre	Oilless	6"	"	65	425	8.00

3", 4" & 5" INSTITUTIONAL STATIONARY CASTERS WITH REPLACEABLE RUBBER WHEELS

MODEL No.	WHEEL SIZE	TREAD MATERIAL	WHEEL BEARINGS	APPROX. OVERALL HEIGHT	FINISH	No. SETS STAN. CASE	LBS. CASE	LIST SET 4
10-12-FK	3" x ¾"	Rubber Fibre	Hardened Steel	4"	Aluminum	100	426	5.00
10-12-D	3" x ¾"	Duplex Rubber	Hardened Steel	4"	Laquer	100	426	5.00
U-10-12-H	3" x ¾"	Hard R. Fibre	Oilless	4"	over	100	426	5.00
10-15-FK	4" x ¾"	Rubber Fibre	Hardened Steel	5"	Cadmium	75	370	5.70
10-15-D	4" x ¾"	Duplex Rubber	Hardened Steel	5"	Plate	75	370	5.70
U-10-15-H	4" x ¾"	Hard R. Fibre	Oilless	5"	Rust	75	370	5.70
U-10-17-D	5" x ⅞"	Duplex Rubber	Oilless	6"	Proof	65	425	7.00
U-10-17-H	5" x ⅞"	Hard R. Fibre	Oilless	6"	"	65	425	7.00

Light Medium-Duty DARNELL *Industrial* CASTERS



1002½ 1202½

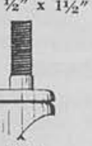
String Guards are standard equipment on this series of Casters, except with the 2" Rubber-Fibre Wheels.

These series are particularly suitable for Dollies, Light Laundry's and Cleaner's Trucks.

The 02 and 60 series can be furnished with Special stems as shown on this page. 60 series fitted for pressure, flush type lubrication. The 02 series only can be furnished with flat tops, A-12 Angle fitting and F-5 and F-6 Leg Sockets.

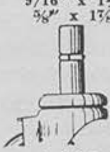
Additional wheels for these series are available. Specify "H" tread (Hard rubber fibre) if for use on oiled floors or in Cleaning Plants where there is Naptha on the floors. "H" tread is unaffected by oil.

Sizes : ⅜" x 1"
½" x 1½"

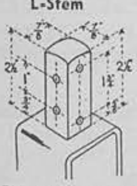


L-Stem

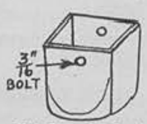
Sizes :
7/16" x 1¼"
½" x 1⅛"
9/16" x 1½"
⅝" x 1⅞"



O-Stem

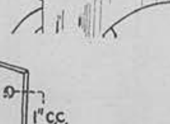


⅞" square stem.
List 50c. each



F-5 Leg Socket
1¼" x 1¼" inside
no extra charge
F-6 Leg Socket
1½" x 1½" inside
List .35c ea.

Pipe Fitting
Sizes ¾" 1" 1¼"
List .40c each



02 SERIES SWIVEL MODELS—REPLACEABLE RUBBER FIBRE & SEMI STEEL WHEELS

Capacity 100 lbs. ea.

Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
1202	2"x1"	Semi Steel	Plain Bearing	2⅞"	2⅜ x 3⅝	1⅝ x 2⅞	1	LAHAW	1.55
1202½	2½"x1"	" "	" "	3½"	2⅜ x 3⅝	1⅝ x 2⅞	1¼	LAHOK	1.90
1202-K	2"x1"	Rubber Fbr.	" "	2⅞"	2⅜ x 3⅝	1⅝ x 2⅞	1	LAHTO	1.55
1202½-K	2½"x1"	" "	" "	3½"	2⅜ x 3⅝	1⅝ x 2⅞	1¼	LAHUP	1.90

02 SERIES STATIONARY MODELS—REPLACEABLE RUBBER FIBRE & SEMI STEEL WHEELS

Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
1002	2"x1"	Semi Steel	Plain Bearing	2⅞"	1½ x 3⅞	1 x 3	1	LAGEZ	1.20
1002½	2½"x1"	" "	" "	3½"	1½ x 3⅞	1 x 3	1¼	LAGID	1.50
1002-K	2"x1"	Rubber Fbr.	" "	2⅞"	1½ x 3⅞	1 x 3	1	LAJAY	1.20
1002½-K	2½"x1"	" "	" "	3½"	1½ x 3⅞	1 x 3	1¼	LAJEC	1.50

60 SERIES SWIVEL MODELS—REPLACEABLE RUBBER & SEMI STEEL WHEELS

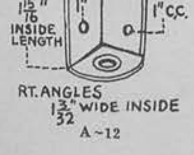
Capacity 150 lbs. ea.

Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
16-62½	2½"x1¼"	Semi Steel	Plain Bearing	3 11/16"	2½ x 3⅝	1¾ x 2⅞	2½	EGBUX	2.50
16-62½-D	2½"x1¼"	Soft Rubber	" "	3 11/16"	2½ x 3⅝	1¾ x 2⅞	1¾	EGBRU	2.50
16-63½	3½"x1¼"	Semi Steel	" "	4 11/16"	2½ x 3⅝	1¾ x 2⅞	3	JEDOM	2.75
16-63½-D	3½"x1¼"	Soft Rubber	" "	4 11/16"	2½ x 3⅝	1¾ x 2⅞	2¼	JEKAF	2.75
16-65	5"x1¼"	Semi Steel	" "	6 3/16"	2½ x 3⅝	1¾ x 2⅞	3½	EGFUB	3.25
16-65-D	5"x1¼"	Soft Rubber	" "	6 3/16"	2½ x 3⅝	1¾ x 2⅞	3	EGFRY	3.25

60 SERIES STATIONARY MODELS—REPLACEABLE RUBBER & SEMI STEEL WHEELS

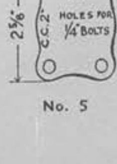
Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
17-62½-S	2½"x1¼"	Semi Steel	Plain Bearing	3 11/16"	2½ x 4⅛	1¾ x 3⅜	2¼	EFDUY	1.85
17-62½S-D	2½"x1¼"	Soft Rubber	" "	3 11/16"	2½ x 4⅛	1¾ x 3⅜	1⅛	EFDOT	1.85
18-63½-S	3½"x1¼"	Semi Steel	" "	4 11/16"	2½ x 4⅜	1¾ x 3⅝	2¾	JEGOP	2.25
18-63½-SD	3½"x1¼"	Soft Rubber	" "	4 11/16"	2½ x 4⅜	1¾ x 3⅝	2	JELAG	2.25
19-65-S	5"x1¼"	Semi Steel	" "	6 3/16"	2½ x 4⅞	1¾ x 4⅛	3½	EGDAF	2.80
19-65-SD	5"x1¼"	Soft Rubber	" "	6 3/16"	2½ x 4⅞	1¾ x 4⅛	2¾	EGCUY	2.80

Capacities recommended, not guaranteed.



A-12

TOP PLATES FOR 02 SERIES



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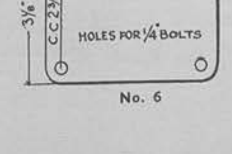

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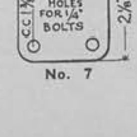

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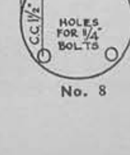

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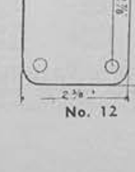
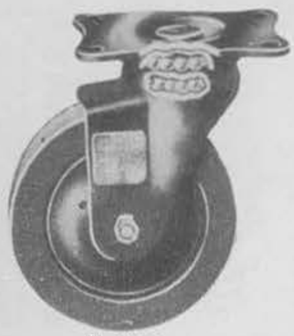


No. 12

DARNELL INDUSTRIAL Medium and Heavy Duty CASTERS

Bakeries, Laundries and Factories

3" 4" 5" and 6"



70 Series
Swivel Model

Ball bearing wheels can be furnished in all models, except 104K and 104SK at extra charge.

70 SERIES SWIVEL MODELS—REPLACEABLE RUBBER FIBRE & SEMI STEEL WHEELS

Capacity Each	Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
250	1-73	3" x 1⅜"	Semi Steel	Plaih Bearing	4 1/16"	3½ x 4½	2⅝ x 3⅝	3½	INADI	$4.00
250	1-74	4" x 1⅜"	" "	" "	5 1/16"	3½ x 4½	2⅝ x 3⅝	4	INAJO	4.35
250	1-75	5" x 1⅜"	" "	" "	6 1/16"	3½ x 4½	2⅝ x 3⅝	5	INAVA	4.70
250	1-73-K	3" x 1⅜"	Rubber Fibre	" "	4 1/16"	3½ x 4½	2⅝ x 3⅝	3	INBEK	4.00
250	1-74-K	4" x 1⅜"	" "	" "	5 1/16"	3½ x 4½	2⅝ x 3⅝	3¼	INBOV	4.35
250	1-75-K	5" x 1⅜"	" "	" "	6 1/16"	3½ x 4½	2⅝ x 3⅝	4	INCEL	4.70

70 SERIES STATIONARY MODELS—REPLACEABLE RUBBER FIBRE & SEMI STEEL WHEELS

Capacity Each	Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
250	14-74-S	4" x 1⅜"	Semi Steel	Plain Bearing	4 1/16"	4 x 5	3 x 4	4	INFOZ	3.35
250	14-75-S	5" x 1⅜"	" "	" "	5 1/16"	4 x 5	3 x 4	5	IODEN	3.70
250	14-75-SS	5" x 1⅜"	" "	" "	6 1/16"	4 x 5	3 x 4	5	IRACO	4.00
250	14-74-SK	4" x 1⅜"	Rubber Fibre	" "	4 1/16"	4 x 5	3 x 4	3¼	IPAEO	3.35
250	14-75-SK	5" x 1⅜"	" "	" "	5 1/16"	4 x 5	3 x 4	4	IPAMU	3.70
250	14-75-SS-K	5" x 1⅜"	" "	" "	6 1/16"	4 x 5	3 x 4	4	IRAPY	4.00

100 SERIES SWIVEL MODELS—REPLACEABLE RUBBER FIBRE TREADS & SEMI STEEL WHEELS

Capacity Each	Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
500	103	3" x 1½"	Semi Steel	Plain Bearing	4⅞"	3½ x 4½	2⅝ x 3⅝	6	IKAMO	6.00
500	104	4" x 1¾"	" "	" "	5⅞"	3½ x 4½	2⅝ x 3⅝	7	IKACE	6.70
500	105	5" x 1⅞"	Rubber Fibre	Roller "	7 1/16"	3½ x 4½	2⅝ x 3⅝	8¼	IKBAD	7.35
250	104-K	4" x 1⅜"	" "	Plain "	5⅞"	3½ x 4½	2⅝ x 3⅝	5	IKBEL	6.70
275	105-K	5" x 1⅝"	" "	Roller "	7 1/16"	3½ x 4½	2⅝ x 3⅝	6½	IKBLO	7.35

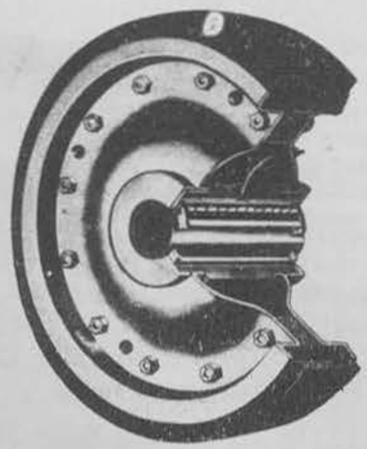
100 SERIES STATIONARY MODELS—REPLACEABLE RUBBER FIBRE TREADS & SEMI STEEL WHEELS

Capacity Each	Model	Wheel Dia. & Width	Tread Material	Wheel Bearing	Overall Height	Top Plate Overall	Bolt Holes C-C Top Plate	Wt. Each	Code	List Pr. Ea.
500	104-S	4" x 1¾"	Semi Steel	Plain Bearing	4⅞"	4 x 5	2⅝ x 3⅝	4½	IKCIM	4.00
250	104-SK	4" x 1⅜"	Rubber Fibre	Plain "	4⅞"	4 x 5	2⅝ x 3⅝	3¼	IKDUZ	4.00
500	105-S	5" x 1⅞"	" "	Roller "	5⅞"	4 x 5	2⅝ x 3⅝	6⅝	IKCOT	4.70
275	105-SK	5" x 1⅝"	" "	Roller "	5⅞"	4 x 5	2⅝ x 3⅝	4½	IKECI	4.70
450	1505-S	5" x 1⅞"	" "	Roller "	7 1/16"	4½ x 5	3½ x 4	7¾		5.50
350	1505-SD	5" x 1⅝"	Soft Rubber	Roller "	7 1/16"	4½ x 5	3½ x 4	6½		5.50
300	106-SS-K	6" x 1⅝"	" "	" "	6⅝"	4 x 5	2⅝ x 3⅝	5	IKFAH	5.70

Capacities recommended, not guaranteed.

DARNELL EASY ROLL WHEEL

Rubber Wheels for Hand and Platform Trucks



CHECK THESE POINTS OF SUPERIORITY

(1) THE EZ ROLL RUBBER TREAD—a special development of Darnell—enables the operator to handle his truck so easily that he prefers these rubber tread wheels to steel wheels.

(2) TREADS ARE REPLACEABLE, though their wear-resisting qualities will obviate this necessity for years to come.

(3) Treads will NOT STRETCH, nor become loose on wheels.

(4) Treads are made SOFT to give maximum protection to floors.

(5) ZERK LUBRICATION

(6) SPIRAL GROOVE ROLLER BEARING is standard equipment, with renewable outer race.

(7) WHEEL BEARINGS made to fit axles 1¼" or less in diameter. Hardened and ground spanner bushings are furnished for axles 1⅛" or less in diameter.

(8) HUB GUARDS keep dirt out and grease in.

(9) ATTACHABLE AXLE GUARD prevents tearing of sacks or grease smears from protruding axles.

(10) RUST-PROOFED by Cadmium Plating.

EASY ROLL SOFT RUBBER WHEELS 6" and 7" Diam. WHEEL BEARINGS FIT AXLES ½" & ¾"

Capacity Each	Wheel No.	Size Diam. Width	Tread Material	Hub Length	Bearing Type	Weight Lbs.	Price List	Tire Each
300	TB-606-WD	6" x 2 3/16"	Easy Roll	2⅞"	Spiral Groove	5½	8.70	1.60
350	TB-607-WD	7" x 2 3/16"	Soft Rubber	2⅞"	Roller Bearing	7½	10.75	—

EASY ROLL SOFT RUBBER WHEELS 8" Diam. to 16" Diam. WHEEL, BEARINGS FIT AXLES ⅝", ¾", ⅞", 1", 1 1/16", 1⅛" & 1¼"

Capacity Each	Wheel No.	Size Diam. Width	Tread Material	Hub Length	Bearing Type	Weight Lbs.	Price List	Tire Each
300	TB-1008-WD	8" x 1 3/16"		2¾"	Spiral Groove	8	8.70	1.75
400	TB-1A08-WD	8" x 1¾"	Easy	2¾"		8¾	9.90	3.25
450	TB-1A09-WD	9" x 1¾"		2¾"	Roller	10	12.00	5.00
550	TLB-1A09-WD	9" x 2½"		3¼"		12	15.00	6.75
350	TB-1010-WD	10" x 1⅝"	Roll	2¾"	Bearing	9¾	10.30	2.75
500	TB-1A10-WD	10" x 2"		2¾"		10½	12.00	4.75
550	TB-1A11-WD	11" x 2"	Soft	2¾"	with	11¾	14.75	6.75
600	TB-1A12-WD	12" x 2"		2¾"		13½	16.30	8.75
700	TLB-1A12-WD	12" x 2½"	Rubber	3¼"	Renewable	14	23.20	—
1000	TLB-1A14-WD	14" x 2½"		3¼"		36	32.00	—
1000	TLB-1A16-WD	16" x 2½"		3¼"	Outer Race		36.00	—

NOTE:—Axle Guards for 8" and 9" wheels list 75c. each. Axle Guards for 10", 11" and 12" wheels list 90c. each.
Hub lengths longer than those given can be furnished.
Capacities recommended, not guaranteed.

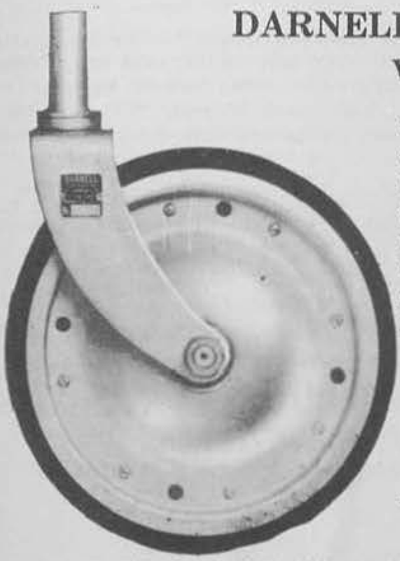
DARNELL Office Chair CASTERS
Also for Beds and Screens.

U-50-D

Use D-Wheel Casters on all floors except carpets. Use H-Wheel Casters on Carpets and rugs.

Model	Wheel Size Dia. & Width	Wheel Type	Approx. Height	Finish	Tread Material	Code	No. Sets Stan. Case	Lbs. Case	List Set 4
U-7-D	1¾" x ¾"	Single	2⅜"		Soft Rubber	EGAGI	58	89	$2.70
U-7-H	1¾" x ¾"	Wheel	2⅜"		Hard Rubber	EJFAK	58	89	2.70
US-9-D	2" x ¾"	Self	2⅝"		Soft Rubber	EJEVE	38	67	3.00
US-9-H	2" x ¾"	Lubricating	2⅝"		Hard Rubber	EJFIT	38	67	3.00
U-50-D	2" x ¾"	Bearing	2⅞"	Oxidized	Soft Rubber	ELCEN	38	97	4.00
U-50-H	2" x ¾"		2⅞"		Hard Rubber	ELCIS	38	97	4.00
U-52-D	2" x 7/16" Twin Wheels	Twin Wheel Self Lubricating Bearing	2¾"		Soft Rubber	ELCRA	34	90	4.70
U-52-H	2" x 7/16" Twin Wheels		2¾"		Hard Rubber	ELCUD	34	90	4.70

DARNELL STRETCHER CARRIER CASTERS
with 8″ and 10″ quiet wheels.



Designed particularly for Stretcher Carrier Service.
Quiet, very tough, resilient replaceable rubber tires.
Easy to move, adjustable **BALL BEARING** wheels.
SWIVEL, DARNELL ADJUSTABLE DOUBLE BALL BEARING, frictionless.
Lubrication is pressure type, quick and thorough.
Service, trouble free, is assured for years by carbonizing hardening of all wearing parts. Rust proofing is Cadmium Plating by the Udylite process.
Finished with Aluminum Lacquer.

X-RAY MACHINES MOVE EASILY ON DARNELL CASTERS
Bumpers, 6" Revolving Type fitted to these models at extra charge.

2010-LD

DARNELL HOSPITAL STRETCHER CARRIER CASTERS

10" WHEELS, SWIVEL, BRAKE AND STATIONARY MODELS

SWIVEL MODELS

Model	Wheel Diam.	Tread Width	Approx. Overall Height	Standard Stem	Spec. Stems Optional	Wgt. Each	List Price Each	Code
2008-LD	8"	1"	9⅝"	1" round x 2½" long	below	6¼ lbs.	$9.50	GEDNO
2010-LD	10"	1"	11⅛"	1" round x 2½"	below	7¼ lbs.	10.00	ATFRO

STATIONARY MODELS

Model	Wheel Diam.	Tread Width	Approx. Overall Height	Standard Stem	Spec. Stems Optional	Wgt. Each	List Price Each	Code
0-2008-SLD	8"	1"	9⅝"	1" round x 2½" long	⅞" sq. x 2½" long drilled	7¼ lbs.	7.50	BEDEK
S-2010-SLD	10"	1"	11⅛"	⅞" sq. x 2½" long	for ¼" bolts. Threaded stem ⅝ x 2"	6½ lbs.	9.10	ATEAK

BRAKE AND SWIVEL LOCK, FOOT OPERATED

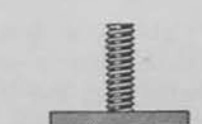
Model	Wheel Diam.	Tread Width	Approx. Overall Height	Standard Stem	Spec. Stems Optional	Wgt. Each	List Price Each	Code
2008-BLD	8"	1"	9⅝"	1" round x 2½" long	⅞" sq. x 2½" long drilled	7¾ lbs.	$16.50	LINAK
2010-BLD	10"	1"	11⅛"	1" round x 2½" long	for ¼" bolts. Threaded stem ⅝ x 2"	9½ lbs.	17.50	LIWEX

WHEELS FOR ABOVE CASTERS

Model	Diam.	Width	Bore	Hub. Len.	Code	Wgt.	Price
X-1008-WLD⅝"	8"	1"	⅝", ⅜", ½" can be furnished	2⅝"	CEBCO	4 lbs.	$5.00
X-1010-LWD-⅝"	10"	1"	⅝", ⅜", ½" can be furnished	2⅝"	CEBLO	4 lbs.	6.00

DARNELL GLIDES

The DARNELL NOISELESS GLIDE is especially for use in all places where the element of quietness is essential.



Screw sizes 8-32 x ¼
8-32 x ½

NOISELESS GLIDES

Model	Size Diameter	Code	No. Sets Stan. Case	Lbs. Case	List Set 4
N-1-S	⅞"	DUBUL	500	58	$ .35
N-2-S	1⅛"	DUCAT	500	90	.40
N-3-S	1¼"	DUDVO	500	133	.50
N-5-S	1½"	DUFAW	500	200	.75
L-2-S	1⅛"	DUFMI	500	90	.40
L-3-S	1¼"	DUFOK	500	133	.50
L-5-S	1½"	DUFTO	500	200	.75

Watson's Western Standard Hand Trucks

These Trucks are not made to compete with cheap product. The material and workmanship is of the best.

"B" Series

The "B" Series are "half ironed." The side straps, axles, legs and nose piece are steel. Handles are bent and shaped to fit the hand nicely. The woodwork is of the best quality and well finished.

No.	Length of Handles	Width	Diameter of Wheels	Weight about	List Price Iron Wheels	List Price R. T. Wheels
B1	47 in.	19 in.	6⅞ in.	52 lbs.	$11.20	$14.00
B2	52 in.	21 in.	7¾ in.	57 lbs.	14.80	18.20
B3	56 in.	22 in.	8¾ in.	71 lbs.	18.80	24.40
B4	60 in.	24 in.	10¾ in.	105 lbs.	22.80	33.80

"C" Series

The "C" Series are "full ironed." The steel parts are heavily ironed. The side straps, nose piece, cross bars, legs and axles are steel. The frame is well made of the best material, and nicely finished. The bolts pass through the frame, tenons and side straps, and cross pieces.

No.	Length of Handles	Width	Diameter of Wheels	Weight about	List Price Iron Wheels	List Price R. T. Wheels
C1	47 in.	19 in.	6⅞ in.	58 lbs.	$13.20	$16.00
C2	52 in.	21 in.	7¾ in.	65 lbs.	16.80	20.20
C3	56 in.	22 in.	8¾ in.	80 lbs.	20.80	26.40
C4	60 in.	24 in.	10¾ in.	112 lbs.	24.80	35.80

Watson's "D" Series Barrel Trucks

(Western Pattern)

"D" Series

These Trucks are made of selected timber. The handles are bent and shaped to fit the hand. The nose piece, side straps and axle are of steel. Made with three curved steel cross bars and top bar of wood.

Can be furnished with four curved steel cross bars, if wanted, in which case add $1.00 to list price.

No.	Length of Handles	Width	Diameter of Wheels	Weight about	List Price Iron Wheels	List Price R. T. Wheels
D1	47 in.	19 in.	6⅞ in.	56 lbs.	$14.00	$16.80
D2	52 in.	21 in.	7¾ in.	65 lbs.	17.40	20.80
D3	56 in.	22 in.	8¾ in.	82 lbs.	22.00	27.60
D4	60 in.	24 in.	10¾ in.	116 lbs.	26.80	37.80

Watson's Railroad and Packing House Trucks

"E" Series

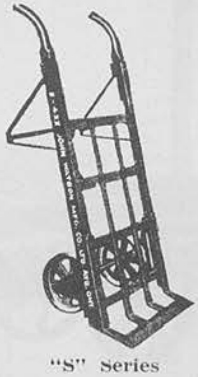
CONSTRUCTION: These Trucks are made of the best materials throughout. The Truck has the right amount of slope so that it balances and carries the load as easily as possible. Every part is made in the most substantial manner.

All the "E" Series Trucks are made 60 inches long. The frames are 24 inches wide. Wheels are 10¾ x 2⅝ inches heavy pattern.

No.	Description	Weight	List Price
E4	One centre bar, not welded to nose	116 lbs.	$25.60
E44	Two centre bars, not welded to nose	118 lbs.	26.40
E4x	One centre bar, welded to nose	125 lbs.	28.40
E4xx	Two centre bars, welded to nose	128 lbs.	30.00

All-Steel Hand and Barrel Trucks

INDESTRUCTIBLE LIGHT RUNNING



"S" Series

The side frames and cross bars are heavy angle steel, thoroughly rivetted with steel gusset plates at each joint and cannot be bent, loosened or broken. The handles (which can be replaced by taking out two bolts) is the only wood used in the construction. Perfect balance. Axles and wheels suspended on "V" shaped springs.

Specifications: Length, including wood handle, 58½ inches, greatest width 24⅜ inches, length of nose 6 inches, wheels 11 x 2½ inches, axle 1⅛ inches, made to five (5) patterns.

No.	Description	Weight about	List Price
S-4	One strap, not welded to nose	136 lbs.	$31.40
S-44	Two straps, not welded to nose	150 lbs.	32.20
S-4x	One strap welded to nose	145 lbs.	33.60
S-4xx	Two straps welded to nose	149 lbs.	35.20
SB-44	Barrel Truck, 2 straps as shown	150 lbs.	34.20

Watson's "F" Series Hand Trucks

(New York Pattern)

"F" Series

These Trucks are a little lighter than the "B" and "C" Series, but are rigid and durable. They are made in two styles, "Half Ironed," and "Strapped up."

DIMENSIONS:

No.	Length	Width at Nose	Width at Top Bar	Wheel	Weight ½ Ironed Truck
F0	48 in.	13	16	6	34
F1	53 in.	14¾	19½	6⅞	46
F2	55 in.	15¾	21¼	7¾	51
F3	59 in.	16	21¼	8¾	68
F4	64 in.	17¼	22¾	10¾	88

PRICES, ETC.

No.	Half Ironed Iron Wheels	Half Ironed R.T. Wheels	Strapped Up Iron Wheels	Strapped Up R.T. Wheels
F0	$10.40	$14.40	$11.60	$15.60
F1	12.80	15.60	14.00	16.80
F2	15.60	19.00	16.80	20.20
F3	17.60	23.20	19.60	25.20
F4	20.80	31.80	22.80	33.80

WATSON'S HANDY TRUCKS

"Daisy" Truck

Convenient Trucks for handling light boxes, bags or packages. They are well made, strong and durable.

Daisy Truck—Steam bent handles 46". Wood bars. 11 in. wide at nose. Steel axle and nose. Wheels 6 in. Weight 21 lbs.

With Iron Wheels—Price $7.60
With R. T. Wheels—Price $11.60

FIG. L. TRUCK

Fig. L. Truck
(The Watson Bag Truck)
With Steam Bent Handles and Heavy Cast Iron Nose.

No. L1—Handle, 43 inches long; width at nose, 10¾ inches; width at top of bar, 17 inches; steel axle; wheels, 6 inches; weight, 24 lbs.
Code Word—Nutrition.
List Price—$6.80.

No. L2—Handle, 49 inches long, width at nose, 15 inches; width at top bar, 20 inches; steel axle; wheels, 6⅞ inches; weight, 62 lbs.
Code Word—Nursery.
List Price—$12.00.

FIG. M. TRUCK

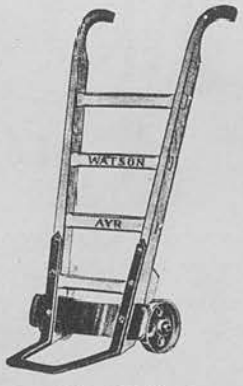


Fig. M. Truck
Minneapolis Bag Truck

The Favorite Truck with the Milling Trade.

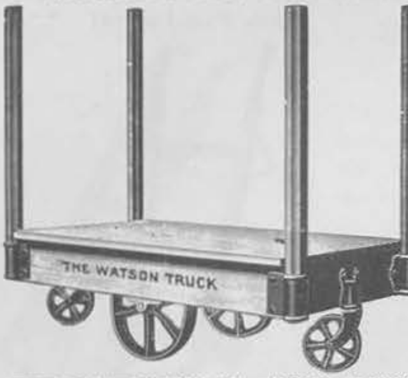
With steam bent handles. Steel nose piece. All parts made smooth so that there is no tearing of bags.

No. M1—Length of handle, 44 inches; wheels, 6 inches; weight, 33 lbs. Nose 9½".
Code Word—Pacific. List Price—$12.00

No. M2—Length of handle, 49 in.; width at nose, 15 in.; width at top bar, 20½ in.; nose, 9½ in. long; weight, 55 lbs. 8 in. x 2 in. wheels.
Code Word—Pacify. List Price—$17.60

No. M3—Length of handle, 54 in.; width at nose, 15 in.; width at top bar 20½ in.; nose 9½ in. long; wheels 8 x 2 inches. Weight 66 lbs.
Code Word—Paladin. List Price—$20.40.

Watson's No. 1 Truck



THE MOST POPULAR TRUCK MADE
Balanced Principles

CONSTRUCTION—The frames are made of the best hard wood and are strongly bolted. The sills are set up edgewise, giving maximum strength and rigidity.

The Corner Iron and Stake Holder are one combination binding the whole frame together, and is so set that it gives the most platform space for piling goods either way of the Truck. The stake is round at the bottom and can be dropped into the holder in any way, where they are always straight and solid.

WHEELS—The main wheels are 13¼" dia. x 2½" face. The Casters are made without using balls or rolls, but are practically frictionless, and will not cramp under a load when turning.

CAPACITY—1500 lbs.

Size Platform	Weight	List Price Iron Wheels	List Price R.T. Wheels
24 x 36"	130 lbs.	$21.60	$48.00
24 x 48"	140 lbs.	22.50	48.90
*27 x 48"	150 lbs.	23.40	49.80
27 x 60"	160 lbs.	25.20	51.60
30 x 60"	167 lbs.	26.20	52.60

*Popular size.

Watson's No. 30 Truck

REYNOLDS PATTERN—WITH BALL BEARING CASTERS

A strong frame. Carries load well over wheel. Turns in its own length.

The front wheels being castered the Truck can be run on Elevator or Scale from any angle. The running gear is so made that it will run on any dormant scale of one ton capacity.

No.	Size	Diameter of Wheel	Diameter of Caster	Weight	Price
30A	24 x 48 in.	14 in.	6 in.	152 lbs.	$40.40
30B	30 x 48 in.	14 in.	6 in.	160 lbs.	42.00
30C	30 x 60 in.	14 in.	6 in.	170 lbs.	43.80
30D	36 x 60 in.	14 in.	6 in.	192 lbs.	47.00
30E	24 x 48 in.	18 in.	9 in.	217 lbs.	48.40
30F	30 x 48 in.	18 in.	9 in.	229 lbs.	50.80
30G	30 x 60 in.	18 in.	9 in.	235 lbs.	53.20
30H	30 x 72 in.	18 in.	9 in.	241 lbs.	55.60
30I	36 x 60 in.	18 in.	9 in.	245 lbs.	57.00
30J	36 x 72 in.	18 in.	9 in.	260 lbs.	59.40
30K	36 x 96 in.	18 in.	9 in.	280 lbs.	64.00

Trucks Nos. 30A to 30D can be furnished with 12" Rubber Tired Main Wheels and 6" Rubber Tired Casters for $26.40 extra to List Price.

Trucks Nos. 30E to 30K can be furnished with 16" Rubber Tired Main Wheels and 8" Rubber Tired Casters for $36.00 extra to List Price.

Trucks Nos. 30E to 30K can be furnished with 18" x 3½" Roller Bearing Wheels and with heavy 2½" face Casters for $8.80 extra to List Price.

CAPACITY—Nos. 30A to 30D, 2,000 lbs. Nos. 30E to 30K, 3,000 lbs.

Watson's No. 2 Truck

A TRUCK FOR HEAVY AND LONG SERVICE

No. 2 Truck can be furnished with **16"** Rubber Tired Main Wheels and 8" Rubber Tired Casters at an advance of $35.00 over the Iron Wheel List Price.

Capacity, 3,000 lbs. Will turn in its own length. Easily handled by one man.

Construction—The frame is built on the same principle as our No. 1.

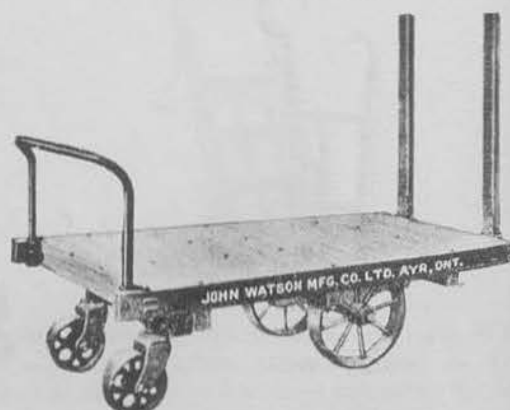
Iron Work is heavier than any other Truck of similar capacity on the market.

Wheels—Main wheels are 17¼ x 2½ in. face. Casters are heavy and have 8¼ in. wheel.

Size Platform	Weight	List Price Iron Wheels
*30 x 60 in.	230 lbs.	$39.40
36 x 60 in.	240 lbs.	42.20
36 x 72 in.	275 lbs.	45.00

Watson's Freight House Truck No. 43

WITH ROLLER BEARING WHEELS AND BALL BEARING CASTERS



For Freight and Warehouses

This is an extra heavy design to carry the largest and heaviest loads that can be economically handled on floor trucks.

The main wheels are of a very substantial pattern with cast hub and with steel spokes and rim. They are equipped with good roller bearings.

The Casters are of a heavy type with ball bearing between the forks and socket.

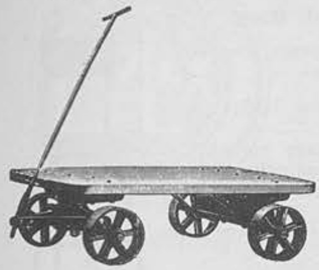
Handles are of a heavy pipe set in iron sockets and bent at top to prevent load from interfering with grasp.

Dimensions—Platform 36" wide by 72" long, standing 19½" high from the floor; main wheels 18" x 3½" face; casters 9" x 2½"; axle 1½" square; stakes 39¼" high; handles 17¾" high.

Weight—630 lbs. **List Price, $65.00.**

The 36" x 72" Platform is the standard size for this Truck but they can be made up in any Special size with adjustment in price.

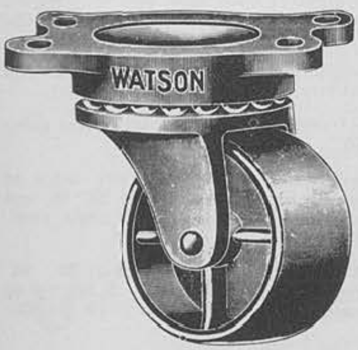
Watson's No. 12 Wagon Truck



Only the best selected lumber is used in the construction of these Trucks. They are furnished with cast iron fifth wheel, and the rear axle rests on solid bolster well braced to platform. All parts are made to template and are interchangeable. **Wheels 8 in. diameter, with 2 in. face. Axles 1⅛" square.**

No.	Platform	Weight	Price
12A	24 x 36 in.	110 lbs.	$27.20
12B	26 x 38 in.	120 lbs.	28.20
12C	28 x 40 in.	130 lbs.	29.20
12D	30 x 42 in.	145 lbs.	30.40
12E	32 x 44 in.	155 lbs.	31.40
12F	34 x 46 in.	170 lbs.	32.80
For Rubber Tired Wheels add..........			13.20

Watson's Anti-Friction Casters



With Iron Wheel

These Casters are superior to anything heretofore introduced. From the construction they cannot gum up with oil or dirt. The Anti-Friction Bearing is placed outside the centre of the wheels, giving an even bearing and relieves all friction upon the pivot and screws.

With Iron or Rubber Tired Wheel

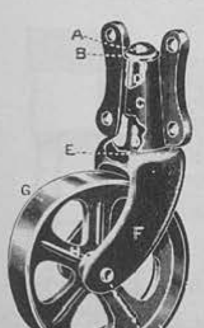
MEDIUM DUTY

Wheel Dia.	Face of Iron wheel	Size of Plate	Height over all	Weight	List Price R. T. Wheel Per doz.	List Price Iron Wheel Per doz.
1⅝"	1"	2⅞" rd.		1 lb.		$ 9.00
2"	¾"	2¼" x 2⅞"	2⅞"	1¼ "	$21.60	9.60
2½"	1"	3⅜" x 4¼"	3⅞"	2¾ "	22.20	12.00
3"	1⅜"	3⅛" x 4¾"	4 9/16"	3½ "	27.60	16.80
4"	1⅜"	3⅜" x 4⅜"	5¼"	4⅛ "	40.20	25.20
5"	1½"	4¼" x 5⅝"	6⅝"	8½ "	60.00	39.60
6"	1¾"	5⅝" x 7"	7⅝"	13½ "	82.80	67.20

HEAVY DUTY

Wheel Dia.	Face	Size of Plate	Height over all	Weight	List Price Iron Wheel per doz.
4"	2 5/16"	3⅜" x 4⅜"	6"	9½ lbs.	$44.40
5"	2¼"	4½" x 6⅛"	7"	10¼ "	75.00
6"	2⅛"	5⅞" x 7"	8"	14½ "	84.00
7"	2"	6" x 8⅜"	9½"	22¼ "	94.80
8"	2"	6" x 8⅜"	10"	22½ "	120.00

Watson's No. 1 and No. 2 Truck Casters



No. 1 Caster as shown with 6⅝" x 1⅛" wheel, height to bottom of sill 7¾", height overall 12¼".

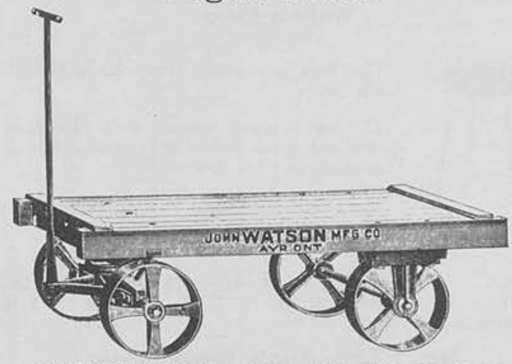
Price with Iron Wheel, $3.00 each.
Price with 6" Rubber Tired Wheel, $6.20 each.

No. 2 Caster is same general design but proportionately heavier throughout. Wheel 8¼" x 1¾", height to bottom of sill 10½", height overall 17½".

Price with Iron Wheel, $5.20 each.
Price with 8" Rubber Tired Wheel, $9.20 each.

Will cost less for up-keep than any other.

Watson's No. 8 and No. 8A Wagon Truck



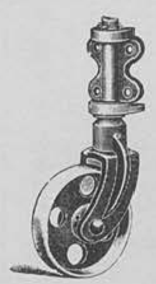
A FAVORITE WITH MILL AND GRAIN MEN

Well braced. Heavy iron fifth wheel. Frame is mortised together. Height 19".

A strong, substantial Truck for heavy work, in freight houses, implement houses, feed and grain warehouses, and is the most serviceable Truck made for the purpose.

	Platform	Wheels	Weight	Price
No. 8	36 x 60 in.	14 x 4 in.	315 lbs.	$57.00
No. 8A	36 x 60 in.	14 x 2½ in.	235 lbs.	47.00

American Wrought Stem Casters



Style No. 600

A very strong, substantial Caster. Used on Trucks carrying very heavy loads or subject to hard usage.

No. 1 with Iron Wheel 6⅝" x 1⅛". Price $3.40 each.

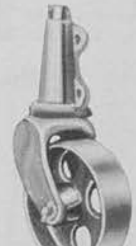
No. 2 with Iron Wheel 7" x 1¾". Price $4.00 each.

No. 2 with 6" Rubber Tired Wheel. Price $7.00 each.

No. 3 with Iron Wheel 8" x 2" Price $5.20.

Heavy Ball Bearing Casters

Reynold's Pattern. Style No. 630.



Size of Wheel	Weight	Iron Wheel	R.T. Wheel	Price, Each
6" x 1¾"	16¾ lbs.	$6.00	6"	$ 7.75
7½" x 2½"	26 "	7.00	7"	11.00
8" x 2"	26½ "	7.20		
9" x 1½"	23½ "	7.00	8"	12.20
9" x 2½"	31¼ "	7.50	9"	14.20
12" x 3"	58 "	16.20		

No. 1 Angle Steel Stools

Without Backs

The legs are made from ¾x¾x⅛-inch angle steel.

The seat is round concave style. Finished in natural birch unless otherwise ordered. Diameter, 14 x $1\frac{1}{16}$ inches thick.

The frame is finished in dark olive green enamel.

Height........inches	12 or 14	16 or 18	20, 22, 24	26
No. 1..........each	$2.70	2.80	2.90	3.10
Weight.......pounds	8	9	11	12

No. 1 D.S. Angle Steel Stools

Without Backs

Legs are made from heavy angle steel; will withstand severe strain.

Wood seats are round concave style, of hardwood. Seats are finished in natural birch unless otherwise specified.

Frames are finished in dark olive green enamel. Diameter of seat, 14 inches; $1\frac{1}{16}$ inches thick.

The 24 and 26-inch legs are made of ¾x¾x⅛-inch angle steel; 28, 30 and 32-inch legs of ⅞x⅞x⅛-inch angle steel.

Height..............inches	24	26	28	30	32
Shipping Weight.....pounds	12	12	15	15	16
Price, No. 1D. S.......each	$3.75	3.75	3.90	3.90	4.20

No. 4 All-Steel Stools

No Backs

All-steel, having a comfortable concave-shaped heavy steel seat 13 inches in diameter. The seat is hand-riveted at the turned edge to the sturdy angle-steel legs.

Made in the following heights, 14, 16, 18, 20, 22, 24 and 26 inches.

Diam. of Seat	inches	13
No. 4, 14 Inches High	each	$2.10
No. 4, 16 and 18 Inches High	each	2.20
No. 4, 20 and 22 Inches High	each	2.30
No. 4, 24 and 26 Inches High	each	2.50

No. 4 D.S. All Steel Stools

No Backs

All-steel, having a comfortable, concave-shaped, heavy steel seat 13 inches in diameter. The seat is hand-riveted at the turned edge to the sturdy angle-steel legs. Strengthened with a double row of stretchers.

Made in the following heights: 24, 26, 28 and 30 inches.

Diam. of Seat	inches	13
Price, No. 4 D.S., 24 and 26 Inches High	each	$2.80
Price, No. 4 D.S., 28 and 30 Inches High	each	3.10

No. 11 Angle Steel Stools

With Back

Has 6x12-inch steel back-rest, riveted to adjustable spring steel pillars.

The legs are made from ¾x¾x⅛-inch angle steel.

The seat is round concave style. Finished in natural birch unless otherwise ordered. Diameter, 14 inches; $1\frac{1}{16}$ inches thick.

The frame is finished in dark olive green enamel.

Ball turned feet.

Height........inches	12 or 14	16 or 18	20, 22, 24	26
No. 11..........each	$4.10	4.20	4.30	4.50
Weight.......pounds	12	13	15	16

No. 11 D. S. Angle Steel Stools

With Back

The all-steel back rest, size 6x12 inches, is riveted to the adjustable spring pillars.

The seat is round concave style, 14 inches in diameter; $1\frac{1}{16}$ inches thick. Finished in natural birch unless otherwise ordered.

The frame is finished in dark olive green enamel.

The 24 and 26-inch legs are made of ¾x¾x⅛-inch angle steel; the 28, 30, and 32-inch legs of ⅞x⅞x⅛ inch angle steel. Ball turned feet.

Height.............inches	22	24 or 26	28 or 30	32
No. 11 D. S..........each	$4.90	5.15	5.30	5.60
Shipping Weight...pounds	15	16	19	20

No. 44 All-steel Stools

With Backs

All-steel, having a comfortable concave-shaped heavy steel seat 13 inches in diameter. The seat is hand-riveted at the turned edge to the sturdy angle-steel legs. It has a comfortable steel back rest 6x12 inches in size. This back is adjustable and removable.

Made in the following heights: 16, 18, 20, 22, 24 and 26 inches.

Diam. of Seat	inches	13
Size of Back	inches	6x12
No. 44, 16 and 18 Inches High	each	$3.60
No. 44, 20 and 22 Inches High	each	3.70
No. 44, 24 and 26 Inches High	each	3.90

No. 44 D.S. All Steel Stools

With Backs

All-steel, having a comfortable, concave-shaped, heavy steel seat 13 inches in diameter. The seat is hand-riveted at the turned edge to the sturdy angle-steel legs. Strengthened with a double row of stretchers. It has a comfortable steel back rest mounted on plain spring-steel pillars. This back is adjustable and removable.

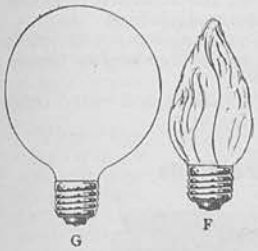
Made in the following heights: 24, 26, 28 and 30 inches.

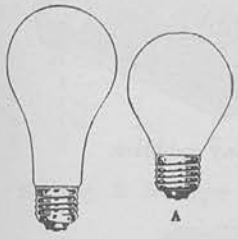
Diam. of Seat	inches	13
Size of Back	"	6x12
Price, No. 44 D.S., 24 and 26 Inches High	each	$4.20
Price, No. 44 D.S., 28 and 30 Inches High	each	4.50

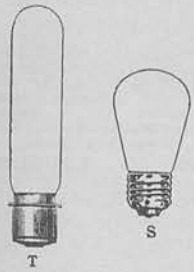
Lamps

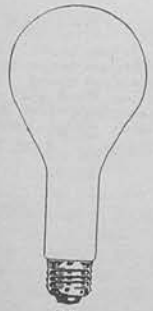
REGISTERED SOLEX TRADE MARK

BULB DESIGNATIONS









Watts	Bulb	List Price	Base	Type B or C	Std. Pkg. Qty.	Rated Initial Lumens	Max. Over-all Length Length, (Inches)	Aver. Light Centre Length, (Inches)	Position of Burning
	SOLEX LAMPS FOR 110, 115 AND 120 VOLT CIRCUITS								
10	S-11 Clear and Colored§	.30	Int.	B	120	79	2 1/16	1 5/8	Any
10	S-14 Clear and Inside Frosted	.25	Med.	B	120	79	3 1/2	2 1/2	Any
10	S-14 Colored§	.30	Med.	B	120	....	3 1/2	....	Any
15	A-17 Inside Frosted	.20	Med.	B	120	135	3 5/8	2 3/8	Any
15	A-17 Colored†	.30	Med.	B	120	....	3 5/8	....	Any
15	F-10 Frosted and Colored‡	.40	Cand.	B	100	....	3 1/16	....	Any
15	S-14 Daylight Clear	.45	Med.	B	120	....	3 1/2	2 1/2	Any
25	A-19 Inside Frosted	.20	Med.	B	120	255	3 15/16	2 1/2	Any
25	A-19 Clear	.35	Med.	B	120	235	3 15/16	2 1/2	Any
25	A-19 Colored†	.30	Med.	B	120	....	3 15/16	....	Any
25	F-15 Frosted and Colored‡	.25	Med.	B	120	....	4 1/2	....	Any
25	G-18 1/2 Clear, Frosted and Colored‡	.40	Med.	B	120	....	3 5/16	....	Any
25	G-25 Clear, Frosted and Colored‡	.50	Med.	B	60	....	4 7/16	....	Any
25	A-19 Daylight Clear	.45	Med.	B	120	....	3 15/16	2 1/2	Any
25	T-6 1/2 Clear Tubular	.50	Int.	B	60	232	5 1/2	....	Any
25	T-10 Clear Tubular	.35	Med.	B	60	243	5 5/8	....	Any
30	T-8 Clear Lumiline	1.20	Disc.	B	24	243	17 3/4	....	Any
30	T-8 Colored Lumiline#	1.30	Disc.	B	24	....	17 3/4	....	Any
40	A-19 Inside Frosted	.20	Med.	C	120	440	4 1/4	2 3/8	Any
40	A-21 Colored†	.30	Med.	B	120	....	4 5/16	....	Any
40	G-25 Clear, Frosted and Colored‡	.50	Med.	B	60	....	4 7/16	....	Any
40	T-8 Clear Tubular	1.20	Med.	B	24	408	11 7/8	....	Any
40	T-8 Clear Lumiline	1.10	Disc.	B	24	344	11 3/4	....	Any
40	T-8 Colored Lumiline#	1.20	Disc.	B	24	....	11 3/4	....	Any
50	A-19 Inside Frosted Rough Service	.50	Med.	B	120	485	3 15/16	2 1/2	Any
50	A-19 Clear Mill Type	.35	Med.	B	120	530	3 15/16	2 1/2	Any
50	A-19 Daylight Clear	.50	Med.	B	120	....	3 15/16	2 1/2	Any
50	T-8 Clear Tubular	1.20	Med.	B	24	535	11 7/8	....	Any
50	PS-25 Inside Frosted, 3-Lite	.65	Three Contact Mogul	C	60	525 / 1420 / 1945	6 13/16	5	Any
100									
150									
60	A-21 Inside Frosted	.20	Med.	C	120	761	4 15/16	3 3/8	Any
60	A-21 Clear Traffic Signal	.35	Med.	C	120	660	4 7/16	2 7/16	Any
60	A-21 Daylight Inside Frosted	.40	Med.	C	120	545	4 15/16	3 3/8	Any
60	T-8 Clear Lumiline	1.20	Disc.	B	24	528	17 3/4	....	Any
60	T-8 Colored Lumiline#	1.30	Disc.	B	24	....	17 3/4	....	Any
60	T-8 Curved Lumiline, Clear	2.25	Disc.	B	24	528	17 3/4	....	Any
60	T-8 Curved Lumiline, Colored#	2.50	Disc.	B	24	....	17 3/4	....	Any
75	A-21 Inside Frosted	.25	Med.	C	120	1035	4 15/16	3 3/8	Any
75	A-21 Clear	.33	Med.	C	120	1035	4 15/16	3 3/8	Any
100	A-23 Inside Frosted, 750 hr.	.25	Med.	C	120	1520	6 1/16	4 3/8	Any
100	A-23 Inside Frosted, 1000 hr.	.33	Med.	C	60	1470	6 1/16	4 3/8	Any
100	A-23 Clear, 1000 hr.	.35	Med.	C	60	1470	6 1/16	4 3/8	Any
100	A-23 Daylight Inside Frosted	.50	Med.	C	60	955	6 1/16	4 3/8	Any
100	G-30 Inside Frosted, 3-Lite	.90	Three Contact Mogul	C	24	1380 / 3300 / 4680	6 3/4	3 3/4	Base down
200									
300									
150	A-25 Clear, 750 hr.	.30	Med.	C	60	2460	6 15/16	5 1/4	Any
150	A-25 Inside Frosted, 750 hr.	.30	Med.	C	60	2460	6 15/16	5 1/4	Any
150	PS-25 Clear, 1000 hr.	.40	Med.	C	60	2383	6 15/16	5 1/4	Any
150	PS-25 Inside Frosted, 1000 hr.	.45	Med.	C	60	2383	6 15/16	5 1/4	Any
150	PS-25 White Bowl	.45	Med.	C	60	2293	6 15/16	5 1/4	Base up
150	PS-25 Daylight Clear	.80	Med.	C	60	1550	6 15/16	5 1/4	Any
150	PS-35 Inside Frosted 3-Lite	1.60	Three Contact Mogul	C	24	2370 / 3360 / 5730	9 7/16	7	Any
200									
350									
200	PS-30 Clear, 750 hr.	.42	Med.	C	24	3520	8 1/16	6	Any
200	PS-30 Inside Frosted, 750 hr.	.42	Med.	C	24	3520	8 1/16	6	Any
200	PS-30 Clear, 1000 hr.	.55	Med.	C	24	3400	8 1/16	6	Any
200	PS-30 Inside Frosted, 1000 hr.	.60	Med.	C	24	3400	8 1/16	6	Any
200	PS-30 White Bowl	.60	Med.	C	24	3300	8 1/16	6	Base up
200	PS-30 Daylight Clear	1.05	Med.	C	24	2210	8 1/16	6	Any
250	PS-35 Clear	1.00	Med.	C	24	4425	9 3/8	7	Any
250	PS-35 Inside Frosted	1.05	Med.	C	24	4425	9 3/8	7	Any
250	PS-35 White Bowl	1.10	Med.	C	24	4300	9 3/8	7	Base up
250	G-30 Inside Frosted Indirect Portable	1.10	Med.	C	24	4670	6 1/2	3 1/2	Base down
300	PS-35 Clear	1.00	Mog.	C	24	5550	9 3/8	7	Any
300	PS-35 Inside Frosted	1.05	Mog.	C	24	5550	9 3/8	7	Any
300	PS-35 White Bowl	1.10	Mog.	C	24	5380	9 3/8	7	Base up
300	PS-35 Daylight Clear	1.65	Mog.	C	24	3620	9 3/8	7	Any
500	PS-40 Clear	1.75	Mog.	C	12	9750	9 3/4	7	Any
500	PS-40 Inside Frosted	1.85	Mog.	C	12	9750	9 3/4	7	Any
500	T-20 Inside Frosted	3.25	Med. Bip	C	12	9650	7 1/2	4	Vertical
500	PS-40 White Bowl	1.85	Mog.	C	12	9450	9 3/4	7	Base up
500	PS-40 Daylight Clear	2.80	Mog.	C	12	6340	9 3/4	7	Any
750	PS-52 Clear	5.25	Mog.	C	6	14540	13 1/16	9 1/2	Any
750	PS-52 Inside Frosted	5.55	Mog.	C	6	14540	13 1/16	9 1/2	Any
750	T-24 Inside Frosted	5.55	Med. Bip	C	6	13715	9 1/8	5 1/2	Base up
750	PS-52 White Bowl	5.55	Mog.	C	6	14100	13 1/16	9 1/2	Base up
1000	PS-52 Clear	5.50	Mog.	C	6	20700	13 1/16	9 1/2	Any
1000	PS-52 Inside Frosted	5.80	Mog.	C	6	20700	13 1/16	9 1/2	Any
1000	T-24 Inside Frosted	5.80	Med. Bip	C	6	19600	9 1/8	5 1/2	Base up
1000	PS-52 White Bowl	5.80	Mog.	C	6	20040	13 1/16	9 1/2	Base up

§ Supplied Inside Colored in Red, Blue, Green, Yellow, Amber-Orange, Flametint and White.
† Supplied Inside and Outside Colored in Flametint, Ivory, Red, Blue, Green, Yellow, Amber-Orange and Rose.
‡ Supplied Outside Colored in Flametint, Ivory, Red, Blue, Green, Yellow, Amber-Orange, Rose and White.
# Supplied Outside Colored in Straw, Orange, Moonlight Blue, Emerald, Surprise Pink and all Standard Colors; also supplied in inside White at same prices as Outside Colored.

GENERAL FLASHLIGHTS

RANGER LINE

No. 935 No. 933 No. 923

No. 923—All Chromium finish, 2-cell head focusing Spotlight. Equipped with toggle switch, octagon non-roll lens ring and ring hanger, extra long end cap which carries spare bulb, throws a beam of light 400 ft.

Price—With Batteries $1.75

No. 933—All Chromium finish, 3-cell head focusing Spotlight. Equipped same as No. 923, throws a beam of light 500 ft.

Price—With Batteries $2.45

No. 935—All Chromium finish, 3-cell focusing Searchlight, toggle switch. Throws a beam approx. 800 ft.

Price—Without Batteries $2.30

No. 955—5-cell focusing Searchlight in all Chromium finish, toggle switch Throws a beam of light 2500 ft.

Price—Without Batteries $3.00

We stock a complete line of batteries and bulbs for the above.

Vulcanized Fibre Sheets

Hard and Flexible

The standard sheets are approximately 44 inches wide and 66 inches long, and can be supplied in any thickness .005 up.

Made in red, black and gray.

Sheet fibre is used for insulating the slots and wire ways in all kinds of electrical machinery. Thicker sheets are used for switch bases, supports, insulating shims, etc. It is also used in switches, receptacles, plugs, and places where insulation must be provided in the least possible space.

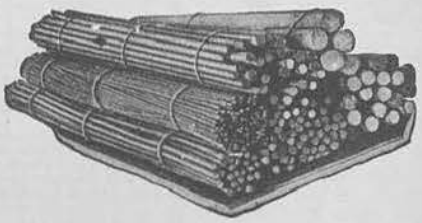
The approximate weight is 20 cubic inches to a pound.

Intermediate thicknesses at price of the next thinner, but sheets just under a standard thickness from 1/8 up, must vary 1/64 inch (.015), or more, from the standard thickness to claim the lower price as an intermediate size.

Sheets about 44x66 inches. No extra charge for cutting in halves, thirds or quarters, or in two, three or four pieces, provided there is no waste left.

Carried in stock in 1/32 to 1/2 inch in red only. Other sizes can be supplied from the factory.
Price on application.

Hard Fibre Rods



Made in three colors, red, gray and black.
Lengths about 60 inches.

BATHROOM BORG STANDARD SCALES

Accurate to ½ of 1%. Metal dial shows weight by the pound. Capacity 250 lbs. Tile rubber platform guaranteed for 5 years. Colors—White, Ivory, Orchid, Green and Black.

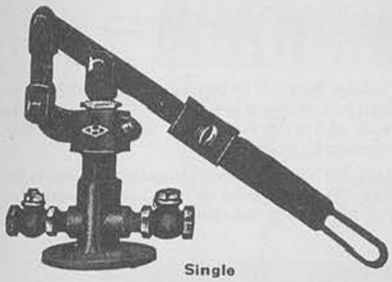
Each .....List $4.95

DELUXE

Streamlined design, platform larger than the standard model. In one color, Black with chromium-plated trim and jet black rubber tread.

Each ...List $6.95

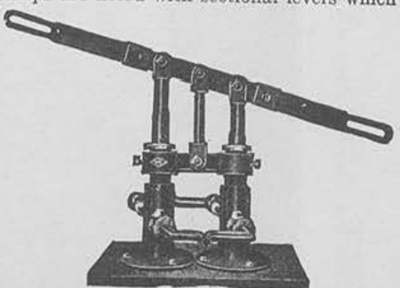
Hydraulic Test Pumps



Single

These pumps will generate a cold water pressure of 500 pounds per square inch, and are adapted for testing boilers, cleaning pipes, etc. The single pump has a revolving top, admitting its being worked in any position. Both pumps are fitted with sectional levers which can be adjusted to give greater leverage.

Where the customer wishes to supply and attach gauge, the pump will be tapped without extra charge.

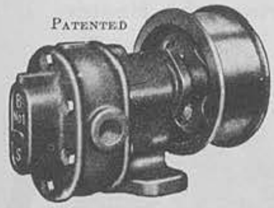


Double

No.	Diam. In. Plunger	Suction Discharge In.	Length Stroke	Single Wt.	Single Price	Double Wt.	Double Price
1	1	¾	4	22	**$14.00**	...	.....
2	1½	1	4	33	**16.00**	...	.....
3	1¾	1¼	6	57	**20.00**	148	**$60.00**
4	2	1½	6	72	**30.00**	180	**90.00**

Brown & Sharpe Rotary Geared Pumps

PATENTED



Without Relief Valve

Simple in construction, the principal mechanism being a pair of gears which run together in a tight case. Either side of the pump can be used for suction, thus allowing it to run in either direction. Furnished with or without an automatic relief valve.

For pumping water, grease cups can be applied to the pump bearings at slight extra cost. Will raise oil on the suction side from 25 to 35 feet with tight piping and at speeds above 600 r.p.m. Install near level of liquid in tank.

No.	R.P.M.	Capacity Gals. per Min. Lard Oil at 0 Lbs. Pressure	Suction and Discharge Pipe Connection, Inches	Diameter Pulley Inches	Width Belt Inches
1	300–900	1½ to 4½	⅜	3 7/16	1
2	300–900	3 to 9	½	4¼	1
3	300–900	5¼ to 16½	¾	5	1¼
4	300–900	8½ to 26	1¼	5	1¼
*21	300–500	1½ to 2½	⅜	3 7/16	1
*23	300–500	5½ to 9	¾	5	1¼

No.	Without Pulley and Relief Valve Each	Without Pulley with Relief Valve Each	With Pulley without Relief Valve Each	With Pulley and Relief Valve Each	Net Weight Pounds
1	**†$10.00**	**†$11.00**	**†$11.00**	**†$12.00**	7
2	**† 12.00**	**† 13.50**	**† 13.50**	**† 15.00**	12
3	**† 14.00**	**† 15.75**	**† 16.00**	**† 17.75**	22½
4	**28.00**	‡	**30.00**	‡	27
*21	**19.00**	‡	**20.00**	‡	8
*23	**40.00**	‡	**42.00**	‡	20

*Differs from Nos. 1 and 3 only in being made of bronze.

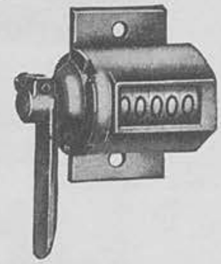
The No. 21 pump has bronze gears and shafts, but corrosion resisting steel gears and shafts can be furnished at extra cost. The No. 23 pump has corrosion resisting steel shafts but bronze shafts can be furnished at extra cost.

†With grease cups applied, extra $3.00.

‡Prices upon application.

No. 1S3 Veeder-Root Ratchet Counters

Veeder Type



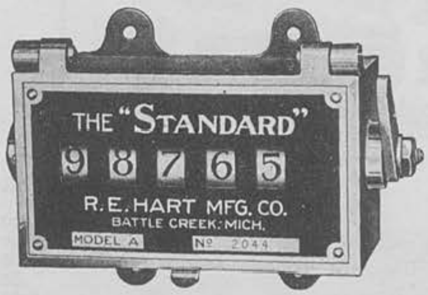
This counter indicates 1 for each oscillation of the lever.

It is fitted with stops which limit the movement of the lever to 45 degrees.

A return action spring returns the lever to its initial position after each stroke.

No. 1S3.......................................each **$2 50**

Model A Hart Revolution Counters



Has 13 working parts. Tested to run 400 per minute.

Registers 100000.

Size 2½x 4 inches.

Model A, 5-Wheel, Reset........................each **$8.00**
Model A, with Handle on Left...................each **8.50**

Veeder-Root Roco Barrel Type Reset Counters

Root Type

This counter has a closed black case. It cannot be tampered with. Regular rotation is top coming.

Can also be made to add when the shaft rotates away from operator, called top going and suffix G so indicates.

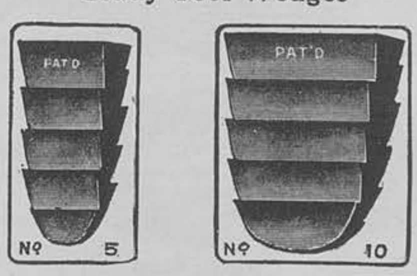
Furnished with lever drive from either end. Regularly furnished with pull out knob reset.

Size, 6⅛x3¼x2½ inches. Weight each, 2½ pounds.

No. **P1265** (R.H.) and **P1275** (L.H.) with Reset..each **$10.50**
No. **1265** (R.H.) and **1275** (L.H.) without Reset..each **8.50**

With cylinder lock, $2.00 extra; with clock key reset, $1.25 extra.

Grady Tool Wedges



Alloy steel, ribbed on both sides. Tapered points.

No. **5** For Hammer and Hatchets, 36 on a display card..................................Per Dozen **.60**
No. **10** For Axes, 24 on a display card....Per Dozen **1.20**

Samson Car Movers

Constructed from specially annealed malleable iron, refined crucible tool steel and second growth hard maple.

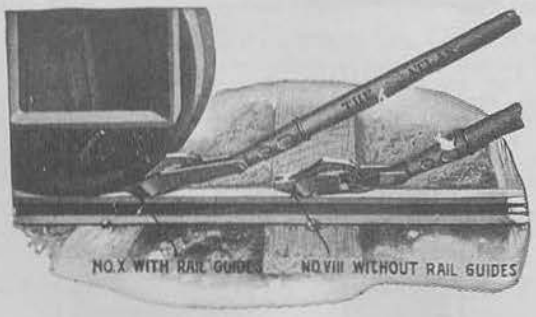
A patent clamping device holds spur; easily released to substitute sharp edge for dull, or to replace spur.

Price, Shipping Weight, 15 Pounds..... $8.00

Repair Parts

Part No.	Description	Price, Each
0	Cam	$.40
2	Wood Handle	2.00
3	Square Spur, ⅜x3 Inch	.50
4	Spring	.50
5	Arm with Cam	2.50
6	Shoe for Triangular Spur	2.00
8	" " Square Spur	2.00
9	Triangular Spur, ⅜x3 Inch	.50
11	Clamp	.40
A	Clamp Bolt	.10
B	Shoe "	.10
C	" Rivet	.05
D	Cam Pin	.05

Atlas Car Movers



Constructed on the compound leverage principle. One man can shift loaded or empty cars at will.

Made in three styles. No. VIII, with double spurs set at an angle to fit rail. No. X, with double spurs and rail guides. No. 8, with single straight spur.

Price.....each $8.00

Repair Parts

Price, Handle	each	$2.00
" Single Spur, or Heel, 19.32x23.8 In	"	.50
" Double or Two-piece Spur, ⅛x1¼ In	per pair	.50
" Triangle Spur, Old Style, ¾x2⅜ In	each	.50

Swaco Safety Hopper Car Wrenches

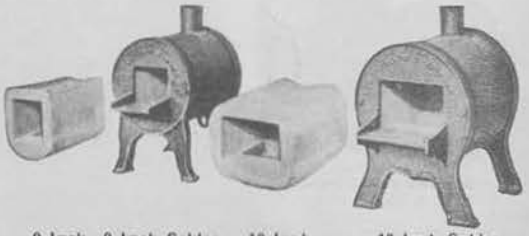
The automatic safety feature is positive. It throws the top pawl automatically to safety when the wrench is lowered. This feature protects the workman from harm even when opening the most obstinate hopper cars.

It is simple in design. There are no complicated parts to get out of order. The ratchet head is ball-bearing and the opening or closing of hoppers is controlled by a mere switch of the trigger.

Wrench is made throughout of high tensile alloy castings with a tensile strength of 70000 to 80000 pounds. Handle is 3 feet long. Ratchet has opening to fit a 2-inch square standard M.C.B. spindle, and is also equipped with a reducing socket for 1½-inch spindle.

Wrench Complete, Weight 26 Pounds.....each $20.00

Bellevue Soldering Iron Heaters



9-Inch Lining | 9-Inch Solder Iron Heater | 10-Inch Lining | 10-Inch Solder Iron Heater

Used by many small shops where there is neither the need nor the necessity of larger furnaces.

Solidly constructed and fitted with a one-piece muffle. Heaters may be had with both front and rear ends open. Either natural or artificial gas may be used.

High grade refractory lining withstands high heat developed with economical (7 air to 1 gas) blast burner.

Soldering irons are uniformly heated quickly and efficiently. These units can also be used for the hardening of small parts.

Heating space of No. 9 is 3 inches high, 4 inches wide, and 9 inches deep. Weight, 28 pounds.

Heating space of No. 10 is 3½ inches high, 5½ inches wide, and 10 inches deep. Weight, 38 pounds.

No.		9	10
For Artificial Gas	each	$6.50	$7.50
For Natural Gas	each	8.50	9.50
Lining	each	1.75	1.75

Compression Springs

No.	O.D. In.	Length In.	Gage	No.	O.D. In.	Length In.	Gage
1	11/32	1	19	41	3/4	3 1/2	10
2	5/16	1 1/4	19	42	15/16	3 1/4	5
3	5/16	1 1/2	24	44	3/4	3 1/8	13
4	9/32	1 3/8	22	46	1 1/16 x 1 11/16	1 7/8	13
5	11/32	1 1/2	18	47	5/8	2 3/8	12
6	5/16	1 1/2	20	48	3/4	2 1/2	12
7	1/4	1 1/4	24	49	7/8	2 1/2	10
8	13/32	1 3/4	16	50	3/4	2 1/2	10
9	5/16	2	18	51	5/8	2 3/4	11
10	1/2	3	18	52	7/8	2 3/4	9
11	1/2	2 3/4	15	53	23/32	2 3/4	12
12	15/32	2 1/2	17	55	7/8	3	13
13	7/16	2 1/4	19	56	7/8	3	12
14	3/8	2 1/4	16	57	1	3	11
15	1/2	2	18	61	1 x 1 1/2	2 1/4	11
16	7/16	2	17	63	15/16	1 3/8	8
17	3/8	2	18	64	23/32	1 5/8	11
18	11/16	3	18	65	13/16	1 7/8	11
19	5/8	3	14	66	3/4	2	14
20	13/32	3	17	67	15/16	2	14
21	5/8	2 3/4	17	68	7/8	2	11
22	13/32	2 3/4	18	69	13/16	2 1/4	12
23	5/8	2 1/2	14	70	13/16	2 1/4	11
24	1/2	2 1/2	16	71	1	2 1/2	11
25	5/8 x 3/16	3/4	17P.B	72	1 1/4	2 1/2	7
26	7/8	7/8	13	73	1 3/8	2 1/2	10
28	11/16	1 1/4	13	74	1 1/2	2 1/2	10
29	9/16	1 3/8	15	111	3/8	1 1/2	23
30	3/8	1 1/2	22	112	7/16	1 7/8	20
32	1 1/2	4	10	113	5/16	1 3/8	21
34	1 1/4	4	9	114	3/8	1 3/4	19
35	11/16	4	12	115	1/32	2	18
36	13/16	4	9	116	5/16	1 5/8	19
37	13/16	3 3/4	10	313	23/32	3 1/2	19
38	1	3 1/2	8	321	23/32	2	12
39	1	3 1/2	11	322	3/4 x 7/8	3 1/4	16
40	3/4	3 1/2	13	...	.....	...	..

Coil Springs

Open or Compression

Closed or Extension

Made of oil tempered steel spring wire. Brass spring wire deteriorates with exposure to the atmosphere, and the coppered spring wire is uncertain as to quality.

The sizes, as given in table, are outside diameter. The springs are made of wire that is approximately 1/8 of the outside diameter of the spring.

Prices upon application.

Brass Spring Wire

Where a good grade of brass spring wire is desired this wire is recommended. Carried in stock in numbers 2 to 24 in coils.

Prices on application.

Spring Steel Music Wire

Music wire, as ordinarily made, is designed to work indifferently well for either mechanical purposes or for strings on musical instruments. This wire is specially made for mechanical purposes only. Has a tensile strength of 170 tons per square inch of section, is extremely tough, instead of brittle.

Gauge No.	Diam. Inches	Feet per Pound	Per Pound	Gauge No.	Diam. Inches	Feet per Pound	Per Pound
0000000	.003	39000	Prices on application	24	.055	124	$1.20
000000	.004	23433		25	.059	108	1.20
00000	.005	14997		26	.063	94	1.20
0000	.006	10415		27	.067	83	1.20
000	.007	7652		28	.071	74	1.20
00	.008	5858	$12.00	29	.075	68	1.20
0	.009	4629	9.00	30	.080	58	1.20
1	.010	3749	7.50	31	.083	54	1.20
2	.011	2936	6.00	32	.086	51	1.20
3	.012	2604	5.00	33	.091	46	1.20
4	.013	2218	4.00	34	.094	43	1.20
5	.014	1913	3.50	35	.098	39	1.20
6	.016	1465	3.00	36	.102	36	1.20
7	.018	1157	2.75	37	.106	34	1.20
8	.020	937	2.50	38	.110	32	1.20
9	.022	775	2.25	39	.114	29	1.20
10	.024	651	2.00	40	.118	27	1.20
11	.026	560	1.80	1/8-In.	.125	24	1.20
12	.029	447	1.80	9/64-In.	.1406	20	1.20
13	.031	391	1.60	5/32-In.	.1562	16	1.20
14	.033	344	1.60	11/64-In.	.1718	12	1.20
15	.035	305	1.60	3/16-In.	.1875	10	1.20
16	.037	274	1.40	13/64-In.	.2031	9	1.20
17	.039	247	1.40	7/32-In.	.2187	8	1.20
18	.041	223	1.40	15/64-In.	.2343	6 3/4	1.20
19	.043	203	1.20	1/4-In.	.250	5 1/2	1.20
20	.045	185	1.20	9/32-In.	.2812	4 3/4	1.20
21	.047	170	1.20	5/16-In.	.3125	4	1.20
22	.049	156	1.20	3/8-In.	.375	2 2/3	1.20
23	.051	144	1.20	.....	.....	...	....

Stove Pipe Wire

Prices upon application.

Stove Pipe Wire is made in S.W.G. No. 18 and 19, and is put up in hanks or coils weighing 1/4 pound which are put up in 10 pound bundles.

Annealed and Galvanized Wire

A good stock carried in all sizes. Can be supplied from No. 6 to No. 18 gauge.

Climax Hand Balers

For use in stores, offices, factories, warehouses, schools, apartments, hospitals, hotels, and all places of business for baling waste paper, etc.

Made of steel, fire proof.

Easy to operate. It takes less time to bale waste paper than to burn it. The baler packs it into bales which take up little space, ready to sell to the paper dealers.

No. 4 baler is illustrated.

No.	Each	Size Bale, Inches	Approx. Wt., of Press, Lbs.
2	$50.00	18x14x28	275
3	60.00	20x16x30	300
4	85.00	20x18x30	400
5	150.00	24x20x34	700
50	200.00	36x20x34	1000
10	450.00	48x24x36	1800

Syraco Oil and Molasses Gates

For oil, molasses, and other slow flowing fluids.

Style A has wood thread. Style E has iron pipe thread. Wood thread has tapered shank. Iron pipe standard thread has straight shank.

Locking gates are furnished up to and including the 2 inch size. Sizes 3 inch and 4 inch in Perfection Pattern.

Sizes ½ to 1¼ inch inclusive are packed one-half dozen in a box. 1½ and 2 inch sizes packed three in a box. 3 and 4 inch sizes packed two in a box.

Size In.	Per Dozen — A & E Japanned	Per Dozen — Porcelain Lined
½	16.50	.....
¾	17.00	.....
1	17.60	.....
1¼	20.35	25.00
1½	24.20	30.00
2	33.00	40.00
3	72.00	62.50
4	165.00	225.00

Le Page's Glue

The quality of Le Page's Liquid Glue is well known. It is always ready for use for all kinds of mending and patching such articles as wood, leather, cloth, etc.

One of the important features of this adhesive material is the can in which it is packed. This is equipped with a patent top, outside friction, easily opened with a screwdriver and when properly put on is perfectly air tight.

No.	30	31	32	33	34	35
Size Can...	1-Gill	½-Pt.	1-Pt.	1-Qt.	½-Gal.	1-Gal.
Each......	$.30	.50	.85	1.50	2.35	4.50

CARPENTER'S CHALK

White—½ gross to box. Per gross..List $3.00
Blue—½ gross to box. Per gross..... " 3.75

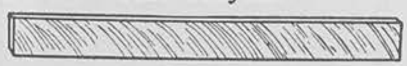
White Chalk Crayons

An inexpensive white chalk crayon made from good domestic materials. The repeated demand for this brand proves its satisfactory use in schools throughout the country. Like all other "Old Faithful" chalk crayons, it is packed in strong lock-cornered wood boxes.

"Sterling" is the best chalk crayon on the market at its price.

Packed 1 gross to the box, 100 gross to the case.
White Chalk Crayon.........per Gross .75

Talc Crayons



Made of the best grade of genuine talc. Flat blunt point, size, 5x½x3/16 inches. Packed one gross in a box.
Talc Crayons..............per Gross 3.50

LUMBER CRAYONS

For use on paper, lumber, logs, etc. Size 5"x½" diameter. One dozen in a box.

Blue. Per gross.....List $12.00
Black. Per gross.... " 8.00
Red. Per gross ..... " 12.00
Yellow. Per gross... " 12.00

Self-tightening Box Strapping

Size Width In.	Weight Lbs. per Coil	Price per 300-ft. Coil
½	7½	.....
⅝	9½	.....
¾	11½	.....
⅞	13½	...
1	15½	....

20 coils to case. Japanned.

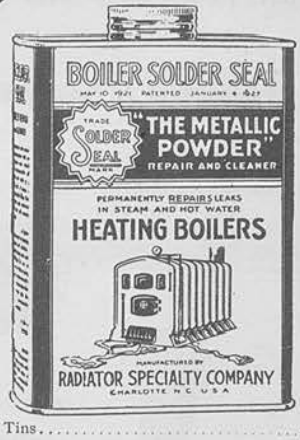
Price on application.

Candles

Made of paraffine and steric. Size, 1¼ by 4¾ inches. Weight, 5 candles to the pound. Packed in cases of 20 or 40 pounds each.
Candles ....per Doz. $1.80

LAMP WICK—Flat

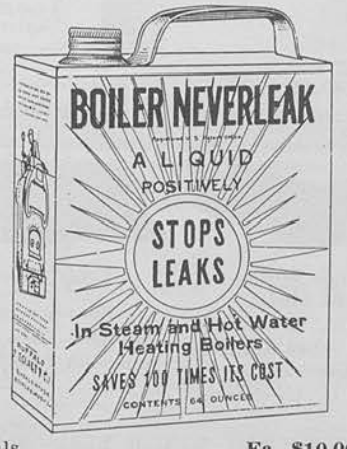
Highest quality pleated cotton wick. Carried in two sizes ⅝" wide and 1" wide.



1 lb. Tins.....**$3.50**

Boiler Solder Seal is the original metal-base boiler repair which goes twice as far as liquids. In fact, one can equals two quarts of any liquid, in **quantity**, and there is no comparison in **performance.** The metallic base hunts out leaks and cracks anywhere in the system . . . in the boiler, pipes and radiators. Many contractors use it on new installations, to prevent leaks from sand holes, split nipples and the like.

Only one can is required for each eight square feet of grate surface on a steam job. Hot water jobs require 50% more.



Gals.	Ea.	$10.00
Half Gals.	Ea.	6.00
Quarts	Ea.	3.40

"X" Boiler Liquid

Quickly and permanently repairs leaks in high and low pressure steam boilers, hot water systems, without shutting down or dismantling the boiler. When poured into the leaking boiler it mixes and flows freely with the water. As it trickles out through the leak or crack, contact with the air changes it to a solid. It expands and contracts with the metal, and forms a permanent repair that will withstand up to 600 pounds pressure. The surplus "X" remaining in the boiler will automatically repair any new leaks that may develop. Contains no soap or any other ingredient that will cause foaming in a boiler.

In ½-gallon and quart-cans, six cans to the carton.

"X" Boiler Liquid. Quart Cans.....per Can **2.65**
"X" Boiler Liquid. ½-Gallon Cans.....per Can **4.25**

Smooth-On Iron Cements

No. 1 is a quick-hardening iron cement used by mixing with water. For repairing breaks in castings, making tight joints and seams, and stopping leaks in boilers, pipe lines, pressure containers, etc. Becomes hard as iron when metallized, and expands at the same rate. May be used on iron, brass, steel, copper, lead, aluminum, etc., either alone or as a filling compound under a plate, and will withstand fire, water, steam, oil, and high pressures. In powder form.

No. 2 is a slow-hardening hydraulic iron cement for the same uses as No. 1. In powder form.

No. 3 is for making screw-thread joints, coating gaskets, and sealing rivets, seams and joints in boilers, etc. Lubricates in assembling screw threads. In paste form.

No. 4 is for filling surface defects in castings; No. 4-A for fine grained, No. 4-B for coarse-grained castings. In powder form.

No. 5 is used by mixing with water. For caulking bell-and-spigot joints in cast iron soil, water, or gas pipes. Requires no heat. In powder form.

No. 6 is a dark gray plastic iron putty, sold ready for use for making water-tight joints on sky and vault lights, for filling in seams, rivet heads and for setting glass in metal frames, etc.

No. 7 is a hydraulic iron cement for waterproofing porous cellar walls from the inside, on wet or dry surfaces, and making hard dustproof and oilproof concrete floors. Especially useful for floors in garages, where oil is usually spilled and heavy tools allowed to drop. In powder form.

Furnished in 1 pound and 5 pound tins, and 25 pound and 100 pound cakes. Price on application.

Norwesco

SOLDERING PASTE

A neutral paste designed for electricians, plumbers, telephone workers, etc.	2 Oz.	.15
	4 Oz.	.25
	1 Lb.	.75

E-Z Welding Compound

E-Z Welding Compound sticks to the metal at a low heat and is equally good for lap, split, V, butt or jump welding.

This compound will weld tool, plow, open-hearth, Bessemer or spring steel, making a strong and smooth weld, at a lower heat than any other compound.

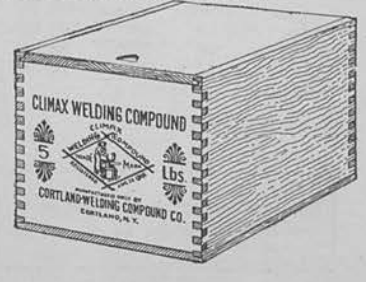
E-Z Compound is used between laps of welds.

1-Pound Boxes	per pound	$.25
5 and 10-Pound Boxes	per pound	.18
25 and 50-Pound Boxes	per pound	.17
100-Pound Drums	per pound	.16½
150-Pound Drums	per pound	.16½
300-Pound Half Barrels	per pound	.15
600-Pound Barrels	per pound	.14½

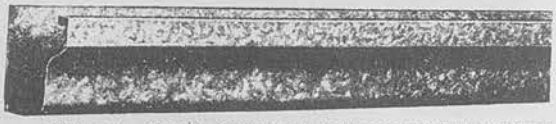
Climax Welding Compound

Designed for application between laps. Causes steel to weld like iron. Welds steel at lowest possible heat.

Cap. Lbs.	Style Container	Price per Lb.
1	Box	$.25
5	Box	.18
10	Box	.18
25	Box	.17
50	Box	.17
100	Box	.16½
150	Keg	.16½
350	½-Bbl.	.15
550	1 Bbl.	.14½



Pedlar's Galvanized Eave Trough



NO. 831—OGEE SQUARE BEAD EAVE TROUGH

Standard Lengths—10 Feet.

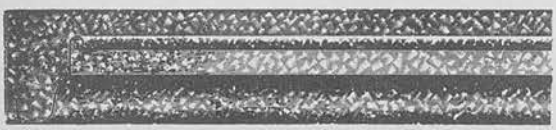
Made From 28 B. W. Gauge

Cat. No.	Girth	Gauge	Weight 100 Ft.
831A	8″	28BW	45 lbs.
B	10″	28BW	56 lbs.
C	12″	28BW	67 lbs.
D	15″	28BW	84 lbs.
E	18″	28BW	101 lbs.

Queen's Copper Galv.

Head Bearing Sheets

We also make Style No. 831 with a High Back on Request.



NO. 847—OGEE ROUND BEAD EAVE TROUGH

Cat. No.	Girth	Gauge	Weight 100 Ft.	
847B	10″	28BW	56 lbs.	Standard Lengths 10 Feet.
C	12″	28BW	67 lbs.	
D	15″	28BW	84 lbs.	
E	18″	28BW	101 lbs.	

NO. 830—HALF ROUND LAP JOINT EAVE TROUGH

Cat No.	Girth	Gauge	Weight 100 Ft.	
830A	8″	28BW	45 lbs.	Standard Lengths 10 Feet.
B	10″	28BW	56 lbs.	
C	12″	28BW	67 lbs.	

NO. 890—SLIP-JOINT EAVE TROUGH

Cat. No.	Girth	Gauge	Weight 100 Ft.
890A	8″	28BW	47 lbs.
B	10″	28BW	58 lbs.
C	12″	28BW	70 lbs.

Standard Lengths—9, 6″.

Face your building, and if water runs to right order Right Hand.

If water runs to left, order Left Hand.

We also supply Eave Trough in heavier Gauges.—Write for Copy of our Price List.

Eave Trough Accessories

No. 845
One Piece "Perfect" Trough Hanger.

For Half Round Eave Trough. Sizes 8″ to 15″.

No. 845.
Showing Method of Application. "Perfect" Trough Hanger. No Tools Required to Apply Them.

No. 844
Wire Strainers.
Prevents Clogging of Conductor Pipes.
Sizes, 2″, 3″, 4″, 5, ″6″.

No. 857.
"Peerless" Hanger
(for Half-Round Trough)
Adjustable for sizes 8″ to 15″.

For OGEE Trough, Sizes 2″, 3″, 4″, 5″.

Trough Outlets No. 893.

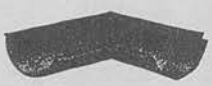
For Half Round Trough.

Outside Mitre.
OGEE Mitres.
Sizes 8″, 10″, 12″, 15″, 18″.
Supplied either Inside or Outside.
Soldered or Unsoldered.

Ridge Cap—No. 694.
For use with Pedlar's Steel Shingles, Tiles, etc. Wood roll tree with Ridge.

FURNISHED IN SINGLE BEAD—SLIP JOINT

No. 860—Single Bead Outside Mitre, Soldered Together.



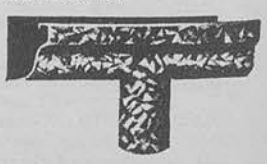
No. 870—Single Bead Inside Mitre, Soldered Together.

Sizes—8″, 10″, and 12″.

When Ordering specify whether Right or Left Hand required.

END AND CENTRE DROPS

END DROP (LEFT)
When ordering be sure to state if Right or Left End Drops wanted.



CENTRE DROP
(Both Ends Open)

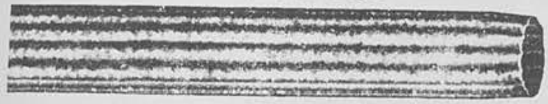
Pedlar's

Galvanized Conductor Pipe

No. 840. PLAIN ROUND CONDUCTOR PIPE

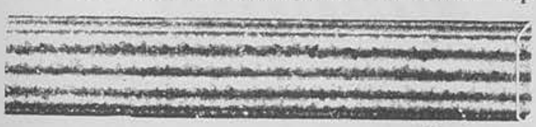
	Size	Gauge	Weight 100 Ft.
No. 840A	2"	28BW	41 lbs.
B	3"	28BW	56 lbs.
C	4"	28BW	72 lbs.
D	5"	28BW	90 lbs.
E	6"	28BW	106 lbs.

No. 841. Corrugated Round Conductor Pipe.



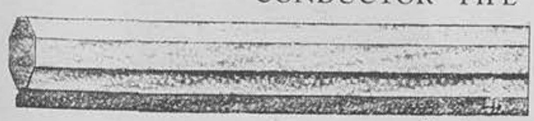
	Size	Gauge	Weight 100 Ft.
No. 841A	2"	28BW	43 lbs.
B	3"	28BW	56 lbs.
C	4"	28BW	70 lbs.
D	5"	28BW	92 lbs.
E	6"	28BW	108 lbs.

No. 850. Square Corrugated Conductor Pipe.



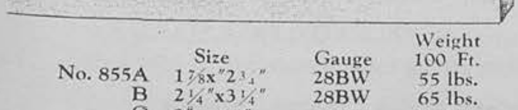
	Size	Gauge	Weight 100 Ft.
No. 850B	2⅜"x3¼"	28BW	58 lbs.
C	2¾"x4¼"	28BW	75 lbs.

No. 854. OCTAGON CONDUCTOR PIPE



	Size	Gauge	Weight 100 Ft.
No. 854B	3"	28BW	65 lbs.
C	4"	28BW	85 lbs.
D	5"	28BW	95 lbs.

No. 855. PLAIN SQUARE LAP JOINT CONDUCTOR PIPE



	Size	Gauge	Weight 100 Ft.
No. 855A	1⅞x"2¾"	28BW	55 lbs.
B	2¼"x3¼"	28BW	65 lbs.
C	3" x4"	28BW	85 lbs.
D	4" x4"	28BW	95 lbs.
E	4" x6"	28BW	105 lbs.

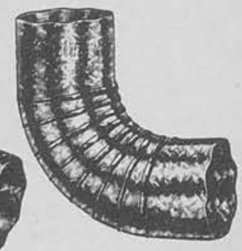
Conductor Pipe Accessories

CONDUCTOR PIPE ELBOWS

CORRUGATED ROUND

No. 1—45°

No. 3—75°



No. 4—90°

STYLE No. 842.

The above Elbows also made in Plain Style.

No. 842A	2"	Specify whether Plain or Corrugated required when Ordering.
B	3"	
C	4"	
D	5"	
E	6"	

PEDLAR'S SHOES SQUARE CORRUGATED

Shoe—75°

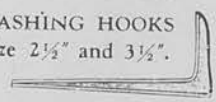
No. 843.
No. 843A—2"
B—3"
C—4"
D—5"
E—6"

Style "A"
Wide Face—Narrow Side.

Style "B"
Narrow Face—Wide Side.

No. 849B—2⅜" x 3¼".
C—2¾" x 4¼"

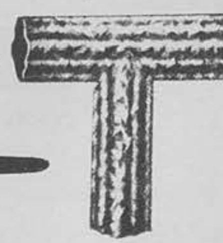
FLASHING HOOKS
Size 2½" and 3½".



No. 839.
Corrugated
Hinge Hooks.

Y's
Corrugated or
Plain.

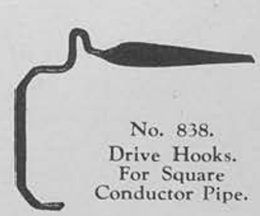
No. 863
Hold Fast
and Wedge.
For Standing Seam
Conductor Pipe.



TEES
Corrugated or
Plain.

No. 836.
Plain Round
Drive Hooks.

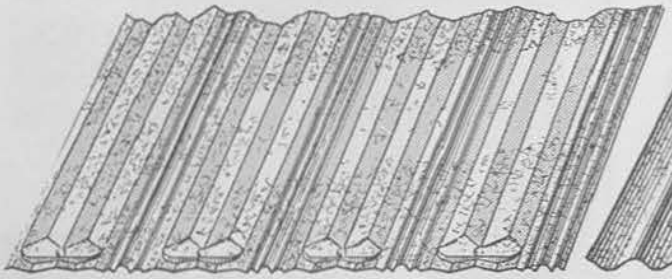
No. 837.
Round Corrugated
Drive Hooks.



No. 838.
Drive Hooks.
For Square
Conductor Pipe.

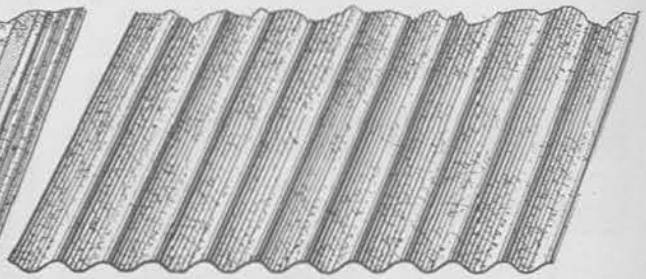
Galvanized Corrugated Iron for Roofing and Siding

RIBBED ROOFING



Coverage — Roofing 32" — to Weather
— Siding 32" —

CORRUGATED ROOFING



Coverage — Roofing 29" — to Weather
— Siding 31" —

1.80 QUALITY CORRUGATED OR RIBBED ROOFING — HEAVY COATING

25 YEAR GUARANTEE

27BG 1.80 heavy coat, price per square $6.75; approx. weight per square 75 lbs.

CORRUGATED OR RIBBED ROOFING — REGULAR COATING

26BG regular coating, price per square $6.75; approx. weight per square 80 lbs.
28BG regular coating, price per square $6.25; approx. weight per square 70 lbs.

CORRUGATED IRON TRIMMINGS

CORRUGATED RIDGE CAP

	Reg. Coating	1.80 Quality
6" Apron (18" girth), per ft.	18c	20c
9" Apron (24" girth), per ft.	23c	26c
12" Apron (30" girth), per ft.	27c	30c
15" Apron (36" girth), per ft.	36c	39c

CORRUGATED HIP FLASHING

	Reg. Coating	1.80 Quality
12" Girth (6" apron), per ft.	13c	15c
15" Girth (6" up, 9" down), per ft.	16c	18c
18" Girth (6" up, 12" down), per ft.	20c	23c
24" Girth (6" up, 18" down), per ft.	28c	31c

CORRUGATED SIDE WALL FLASHING

	Reg. Coating	1.80 Quality
12" Girth (6" up, 6" roof), per ft.	13c	15c

CORRUGATED END WALL FLASHING

	Reg. Coating	1.80 Quality
9" Girth (4" up, 5" roof), per ft.	11c	12c
12" Girth (6" up, 6" roof), per ft.	13c	15c
15" Girth (6" up, 9" roof), per ft.	16c	18c

LEAD HEAD ROOFING NAILS

Lengths 1", 1¼", 1½", 1¾", 2"	16c lb.
Spiral Lead Head above lengths	19c lb.

CORRUGATED EAVE STARTER

9" Girth (6" on roof), per ft.	11c	12c

The trimmings illustrated above are for corrugated roofing. Similar trimmings are obtainable for ribbed roofing.

Allen Safety Hollow Set Screws

Chrome-Molybdenum Steel

OVAL POINT

CONE POINT

CUP POINT

FLAT POINT

HALF DOG POINT

Four wrenches furnished free with each 100 screws.

Made of heat-treated Chrome-Molybdenum alloy steel. Milled from the bar. Have clean, true, wrench-fitting sockets with hexagon holes for fast, firm set-ups. Provide more socket wall strength than the ordinary broached screws. Accurately threaded, so the screws will not loosen in vibrating parts.

A safety screw recommended by leading insurance companies.

Per 100

Diameter Screw, Inches	No. 4	No. 5	No. 6	No. 8	No. 10	No. 12	1/4	5/16	3/8
Amer. Std. Coarse Threads per Inch	40	40	32	32	24	24	20	18	16
Amer. Std. Fine Threads per Inch	48	44	40	36	32	28	28	24	24
Size of Hexagon Hole, Inches	.050	1/16	1/16	5/64	3/32	7/64	1/8	5/32	5/16
Length Overall, Inches 1/8	3.90	4.00	4.10	4.20	....	....	....	....	....
3/16	4.00	4.10	4.20	4.30	*4.70	4.70	*4.75	....	....
1/4	4.10	4.20	4.30	4.40	*4.75	4.75	*4.80	*4.85	*4.90
5/16	4.20	4.30	4.40	4.50	*4.80	4.80	*4.85	*4.90	*4.95
3/8	4.30	4.40	4.50	4.60	*4.85	4.85	*4.90	*4.95	*5.00
7/16	4.40	4.50	4.60	4.70	*4.90	4.90	*4.95	*5.00	*5.23
1/2	4.50	4.60	4.70	4.80	*4.95	4.95	*5.00	*5.20	*5.45
9/16	4.60	4.70	4.80	4.90	5.00	5.00	5.18	5.40	5.68
5/8	4.70	4.80	4.90	5.00	*5.15	5.15	*5.35	*5.60	*5.90
3/4	4.80	4.90	5.00	5.35	*5.45	5.45	*5.70	*6.00	*6.35
7/8	4.90	5.00	5.55	5.65	5.75	5.75	6.05	6.40	6.80
1	5.65	5.75	5.85	5.95	*6.05	6.05	*6.40	*6.80	*7.25
1 1/4	6.25	6.35	6.45	6.55	6.65	6.65	7.10	7.60	*8.15
1 1/2	....	....	....	....	....	....	7.80	8.40	*9.05
1 3/4	....	....	....	....	....	....	8.50	9.20	9.95
2	....	....	....	....	....	....	9.20	10.00	10.85
2 1/4	....	....	....	....	....	....	....	....	12.65
2 1/2	....	....	....	....	....	....	....	....	14.45
Add for each 1/4-inch length not listed	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.60	1.80
Extra Wrenches, Short.....Each	.03	.03	.03	.03	.03	.03	.03	.04	.05
Extra Wrenches, Long.....Each	.04	.04	.04	.04	.04	.04	.04	.05	.06

Per 100

Diameter Screw, Inches	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2
Amer. Std. Coarse Threads per Inch	14	13	11	10	9	8	7	7	6
Amer. Std. Fine Threads per Inch	20	20	18	16	14	14	12	12	12
Size of Hexagon Hole, Inches	7/32	1/4	5/16	3/8	1/2	9/16	5/8	5/8	3/4
Length Overall, Inches 5/16	5.80	....	....	....	....	....	....	....	....
3/8	*5.90	* 6.80	....	....	....	....	....	....	....
7/16	*6.00	* 6.90	9.70	....	....	....	....	....	....
1/2	*6.25	* 7.00	* 9.80	11.70	....	....	....	....	....
9/16	6.50	7.30	9.90	11.80	....	....	....	....	....
5/8	*6.75	* 7.60	*10.00	11.90	....	....	....	....	....
3/4	*7.25	* 8.20	*10.70	12.00	14.90	19.80	....	....	....
7/8	7.75	8.80	11.40	12.90	15.00	19.90	....	....	....
1	8.25	* 9.40	*12.10	13.80	16.10	20.00	....	....	....
1 1/4	9.25	*10.60	*13.50	15.60	18.30	22.80	36.65	40.00	....
1 1/2	10.25	*11.80	*14.90	17.40	20.50	25.60	39.95	48.00	50.00
1 3/4	11.25	13.00	16.30	19.20	22.70	28.40	42.25	56.00	62.00
2	12.25	14.20	17.70	21.00	24.90	31.20	45.55	60.00	68.00
2 1/4	14.25	15.40	19.10	22.80	27.10	34.00	48.85	64.00	74.00
2 1/2	16.25	16.60	20.50	24.60	29.30	36.80	52.15	68.00	80.00
2 3/4	....	17.80	21.90	26.40	31.50	39.60	55.45	72.00	86.00
3	....	19.00	23.30	28.20	33.70	42.40	58.75	76.00	92.00
3 1/4	....	....	....	....	....	....	62.05	80.00	98.00
3 1/2	....	....	....	....	....	....	65.35	84.00	104.00
3 3/4	....	....	....	....	....	....	68.65	88.00	110.00
4	....	....	....	....	....	....	71.95	92.00	116.00
Add for each 1/4-inch length not listed	2.00	2.40	2.80	3.60	4.40	5.60	6.60	8.00	12.00
Extra Wrenches, Short.....Each	.06	.07	.10	.15	.25	.35	.35	.45	.65
Extra Wrenches, Long.....Each	.07	.08	.12	.20	.35	.50	.50	.65	.95

All sizes (except those in italics) are standard in American Standard Coarse (U. S. S.) Threads cup point.

***Sizes starred** are standard in Fine Thread cup point only, and in Coarse Thread oval, flat, half dog and cone points.

Sizes in italics are made to order in coarse or fine threads, and in standard points at above prices in quantities of five hundred pieces of a size. For less than five hundred, prices on application.

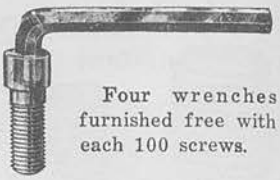
All other diameters, lengths, threads, points, etc., are special, prices on application.

Allen Socket Head Cap Screws

Chrome-Molybdenum Steel

Milled from the bar. Threaded accurately to standard gages. Head finished all over and turned true with body of screw; underside trimmed to lie flat.

Chrome-Molybdenum Steel is standard. Brass, Hardware Bronze, Everdur, Duralumin, Monel Metal, Nickel and Stainless Steel can be furnished if desired.



Four wrenches furnished free with each 100 screws.

Per 100

Diameter Screw, Inches	No. 4	No. 5	No. 6	No. 8	No. 10	No. 12	1/4	5/16	3/8
Amer. Std. Coarse Threads per Inch	40	40	32	32	24	24	20	18	16
Amer. Std. Fine Threads per Inch	48	44	40	36	32	28	28	24	24
Maximum Head Diameter, Inches	.174	.196	.217	.265	5/16	11/32	3/8	7/16	9/16
Maximum Head Height, Inches	.112	.125	.138	.164	.190	.216	1/4	5/16	3/8
Size of Hexagon Hole, Inches	3/64	3/32	3/32	1/8	5/32	5/32	3/16	7/32	5/16
Length Under Head, Inches — 1/4	4.40	4.50	4.60	....	....	....	....	....	....
3/8	4.60	4.70	4.80	....	*4.90	....	* 5.25	* 6.25	....
1/2	4.80	4.90	5.00	5.10	*5.10	5.10	* 5.50	* 6.50	* 7.40
5/8	5.00	5.10	5.20	5.30	*5.30	5.30	* 5.75	* 6.75	* 7.70
3/4	5.20	5.30	5.40	5.50	*5.50	5.50	* 6.00	* 7.00	* 8.00
7/8	....	....	....	....	*6.00	....	* 6.50	* 7.50	* 8.50
1	5.95	6.05	6.15	6.25	*6.25	6.25	* 6.75	* 7.75	* 9.00
1 1/4	6.70	6.80	6.90	7.00	*7.00	7.00	* 7.50	* 8.50	*10.00
1 1/2	7.45	7.55	7.65	7.75	*7.75	7.75	* 8.25	* 9.25	*11.00
1 3/4	8.20	8.30	8.40	8.50	*8.50	8.50	* 9.00	*10.00	*12.00
2	8.90	9.05	9.15	9.25	*9.25	9.25	* 9.75	*10.75	*13.00
2 1/4	....	....	....	....	....	....	*10.50	*11.50	*14.00
2 1/2	....	....	....	....	....	....	*11.25	*12.25	*15.00
2 3/4	....	....	....	....	....	....	*12.00	*13.00	*16.00
3	....	....	....	....	....	....	*12.75	*13.75	*17.00
3 1/4	....	....	....	....	....	....	....	*15.25	*18.00
3 1/2	....	....	....	....	....	....	....	*16.75	*19.00
3 3/4	....	....	....	....	....	....	....	....	*21.00
4	....	....	....	....	....	....	....	....	*23.00
4 1/4	....	....	....	....	....	....	....	....	25.00
4 1/2	....	....	....	....	....	....	....	....	27.00
4 3/4	....	....	....	....	....	....	....	....	29.00
5	....	....	....	....	....	....	....	....	31.00
Add for each 1/4-inch length not listed	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.00
Extra Wrenches, Short.....Each	.03	.03	.03	.03	.04	.04	.05	.06	.10
Extra Wrenches, Long.....Each	.05	.05	.05	.05	.05	.05	.06	.07	.12

Per 100

Diameter Screw, Inches	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2
Amer. Std. Coarse Threads per Inch	14	13	11	10	9	8	7	7	6
Amer. Std. Fine Threads per Inch	20	20	18	16	14	14	12	12	12
Maximum Head Diameter, Inches	5/8	3/4	7/8	1	1 1/8	1 5/16	1 1/2	1 3/4	2
Maximum Head Height, Inches	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2
Size of Hexagon Hole, Inches	5/16	3/8	1/2	9/16	9/16	5/8	3/4	3/4	1
Length Under Head, Inches — 1/2	* 8.90	*10.20	....	....	....	....	....	....	....
5/8	* 9.20	*10.60	....	....	....	....	....	....	....
3/4	* 9.50	*11.00	....	....	....	....	....	....	....
7/8	*10.00	*11.75	....	....	....	....	....	....	....
1	*10.50	*12.25	*18.00	...	....	....	....	....	....
1 1/4	*11.50	*13.50	*19.75	*20.75	....	....	....	....	....
1 1/2	*12.50	*14.75	*21.50	*23.00	....	....	....	....	....
1 3/4	*13.50	*16.00	*23.25	*25.25	40.00	....	....	....	....
2	*14.50	*17.25	*25.00	*27.50	42.75	45.50	92.50	....	....
2 1/4	*15.50	*18.50	*26.75	*29.75	45.50	49.00	100.00	....	....
2 1/2	*16.50	*19.75	*28.50	*32.00	48.25	52.50	107.50	127.50	....
2 3/4	*17.50	*21.00	*30.25	*34.25	51.00	56.00	115.00	136.25	....
3	18.50	*22.25	*32.00	*36.50	53.75	59.50	122.50	145.00	185.50
3 1/4	*19.50	*23.50	*33.75	*38.75	56.50	63.00	130.00	153.75	196.75
3 1/2	*20.50	*24.75	*35.50	*41.00	59.25	66.50	137.50	162.50	208.00
3 3/4	*22.50	*26.00	*37.25	*43.25	62.00	70.00	145.00	171.25	219.25
4	*24.50	*27.25	*39.00	*45.50	64.75	73.50	152.50	180.00	230.50
4 1/4	....	28.50	40.75	47.75	67.50	77.00	....	....	....
4 1/2	....	29.75	42.50	50.00	70.25	80.50	167.50	197.50	253.00
4 3/4	....	31.00	44.25	52.25	73.00	84.00	....	....	....
5	....	32.25	46.00	54.50	75.75	87.50	182.50	215.00	275.50
5 1/4	....	33.50	47.75	56.75	78.50	91.00	....	....	....
5 1/2	....	34.75	49.50	59.00	81.25	94.50	197.50	232.50	298.00
5 3/4	....	36.00	51.25	61.25	84.00	98.00	....	....	....
6	....	37.25	53.00	63.50	86.75	101.50	212.50	250.00	320.50
Add for each 1/4-inch length not listed	2.00	2.50	3.50	4.50	5.50	7.00	15.00	17.50	22.50
Extra Wrenches, Short.....Each	.10	.15	.25	.35	.35	.45	.65	.65	1.05
Extra Wrenches, Long.....Each	.12	.20	.35	.50	.50	.65	.95	.95	1.65

All sizes (except those in italics) are standard in American Standard Coarse (U. S. S.) Threads. ***Sizes starred** are also standard in American Standard Fine (S. A. E.) Threads. **Sizes in italics** are made to order in coarse or fine threads at above prices in quantities of five hundred pieces of a size. For less than five hundred, prices on application. All other diameters, lengths, threads, points, etc., are special, prices on application.

Hexagon Head Cap Screws

Cold Forged and Milled from the Bar

Price, per 100

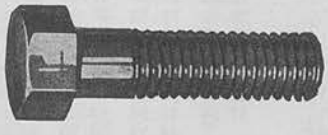
Diameter of Screw ..... inches	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Diameter of Head ..... inches	7/16	1/2	9/16	5/8	3/4	13/16	7/8	1	1 1/8	1 5/16
Height of Head ..... inches	3/16	15/64	9/32	21/64	3/8	27/64	15/32	9/16	21/32	3/4
Threads {National Coarse (U.S.S.)}	20	18	16	14	13	12	11	10	9	8
Per Inch {National Fine (S.A.E.)}	28	24	24	20	20	18	18	16	14	14
Length under Head to Extreme Point, Inches — 1/2	$1.30	$1.50	$1.90	....	.....	.....	.....	.....	.....	.....
5/8	1.35	1.60	2.00	....	.....	.....	.....	.....	.....	.....
3/4	1.40	1.70	2.10	$3.00	$4.70	.....	.....	.....	.....	.....
7/8	1.50	1.80	2.20	3.10	4.90	.....	.....	.....	.....	.....
1	1.60	1.90	2.30	3.20	5.10	$7.90	$8.60	.....	.....	.....
1 1/4	1.80	2.10	2.50	3.50	5.50	8.40	9.20	$13.30	.....	.....
1 1/2	2.00	2.30	2.70	3.80	5.90	8.90	9.80	14.10	.....	.....
1 3/4	2.20	2.50	3.00	4.10	6.30	9.40	10.40	14.90	.....	.....
2	2.40	2.70	3.30	4.50	6.70	10.00	11.00	15.70	$24.60	$36.00
2 1/4	2.60	2.90	3.60	4.90	7.20	10.60	11.60	16.50	25.80	38.00
2 1/2	2.80	3.20	3.90	5.30	7.70	11.20	12.20	17.30	27.20	40.00
2 3/4	3.00	3.50	4.30	5.70	8.20	11.80	12.80	18.10	28.60	42.00
3	3.30	3.80	4.70	6.20	8.70	12.40	13.50	18.90	30.00	44.00
3 1/4	4.00	4.60	5.30	6.70	9.20	13.00	14.20	19.80	31.50	46.00
3 1/2	4.70	5.40	5.90	7.20	9.80	13.60	15.00	20.80	33.00	49.00
3 3/4	....	....	6.80	7.90	10.40	14.30	15.80	21.80	35.00	52.00
4	....	....	7.70	8.60	11.00	15.00	16.60	22.80	37.00	55.00
4 1/2	....	....	....	....	13.40	17.50	18.60	25.50	41.00	61.00
5	....	....	....	....	.....	.....	22.60	30.90	45.00	68.00
5 1/2	....	....	....	....	.....	.....	.....	.....	54.00	80.00
6	....	....	....	....	.....	.....	.....	.....	63.00	92.00
Add for Each 1/4 Inch	.70	.80	.90	1.00	1.20	1.50	2.00	2.70	4.50	6.00

Thread lengths: National Coarse (U.S.S.) thread screws threaded two times diameter of body plus 1/4 inch.

Give diameter first when ordering.

National Fine (S.A.E.) thread screws threaded one and one-half times diameter of body plus 1/4 inch.

Hexagon Head Brass Cap Screws



National coarse threads (U.S.S.).

Per 100

Diam. Screw ..... in.	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Diam. Head ..... in.	7/16	1/2	9/16	5/8	3/4	7/8	1
Height Head ..... in.	3/16	15/64	9/32	21/64	3/8	15/32	9/16
Threads per Inch	20	18	16	14	13	11	10
Length Under Head, Inches — 3/8	$4.60	.....	.....	.....	.....	.....	.....
1/2	4.70	$6.70	$8.50	.....	.....	.....	.....
5/8	4.90	6.90	8.80	.....	.....	.....	.....
3/4	5.10	7.10	9.10	$12.10	$17.90	.....	.....
7/8	5.30	7.30	9.40	.....	.....	.....	.....
1	5.50	7.60	9.80	13.10	19.00	$26.10	$39.00
1 1/4	6.00	8.20	10.60	14.20	20.20	28.50	43.80
1 1/2	6.50	8.90	11.50	15.40	21.50	31.00	48.90
1 3/4	7.10	9.70	12.50	16.70	22.90	33.60	54.00
2	7.80	10.80	13.60	18.10	24.40	36.40	59.20
2 1/4	8.70	11.80	14.80	19.60	26.00	39.40	64.40
2 1/2	9.80	12.90	16.10	21.20	27.70	42.70	69.60
2 3/4	11.00	14.20	17.50	23.00	29.60	46.30	74.70
3	12.00	15.40	19.00	25.00	31.70	50.30	79.80
3 1/2	.....	.....	22.00	.....	35.30	57.30	.....
4	.....	.....	25.00	.....	38.90	64.40	.....
Add for ea. 1/4-Inch	1.05	1.15	1.40	1.75	1.80	3.50	5.00

Flat Head Cap Screws

Flat head cap screws are measured over all for length. Coarse (U.S.S.) threads only carried in stock.

Larger diameters and longer lengths take special price based on quantity.

State diameter first when ordering.

Packed in packages.

Per 100

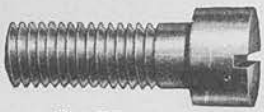
Diam. Screw ..... in.	1/4	5/16	3/8	7/16
Diam. Head ..... in.	1/2	5/8	3/4	13/16
Threads to Inch	20	18	16	14
Length Over All, Inches — 3/4	$2.70	$3.00	$3.75	$5.30
1	3.05	3.35	4.15	5.30
1 1/4	3.35	3.55	4.45	5.65
1 1/2	3.65	3.80	4.80	6.05
1 3/4	3.80	4.10	5.20	6.50
2	4.00	4.35	5.60	6.90
2 1/4	4.15	4.65	6.00	7.50
2 1/2	....	4.95	6.40	8.05
2 3/4	....	5.25	6.80	8.60
3	....	....	7.20	9.15
*Add for each 1/4 inch	.90	1.10	1.60	2.00

Diam. Screw ..... in.	1/2	9/16	5/8	3/4
Diam. Head ..... in.	7/8	1	1 1/8	1 3/8
Threads to Inch	13	12	11	10
Length Over All, Inches — 1	$6.85	.....	.....	.....
1 1/4	6.85	$10.50	.....	.....
1 1/2	7.35	10.50	$11.50	.....
1 3/4	7.80	11.15	11.50	$16.75
2	8.30	11.80	12.15	16.75
2 1/4	9.00	12.60	13.00	17.80
2 1/2	9.75	13.50	13.90	18.80
2 3/4	10.50	14.25	14.65	19.80
3	11.20	15.00	15.40	20.90
*Add for each 1/4 inch	2.50	3.00	4.00	5.00

*Add for each 1/4 inch for lengths not exceeding 4 inches.

Fillister and Flat Fillister Head Cap Screws

Fillister Head



Flat Fillister Head

Effective February 1, 1924

Price, per 100

Diam. Screw...in.	1/4	5/16	3/8	7/16	1/2
Diam. Head...in.	3/8	7/16	9/16	5/8	3/4
*Height Head..in	11/64	13/64	1/4	19/64	21/64
Threads to Inch..	20	18	16	14	13
Length Under Head to Extreme Point, Inches: 3/4	$2.70	$3.00	$3.75	$4.90	$6.10
1	3.05	3.35	4.15	5.30	6.50
1 1/4	3.35	3.55	4.45	5.65	6.85
1 1/2	3.65	3.80	4.80	6.05	7.35
1 3/4	3.80	4.10	5.20	6.50	7.80
2	4.00	4.35	5.60	6.90	8.30
2 1/4	4.15	4.65	6.00	7.50	9.00
2 1/2	4.35	4.95	6.40	8.05	9.75
2 3/4	4.55	5.25	6.80	8.60	10.50
3	4.70	5.55	7.20	9.15	11.20
3 1/4	....	5.85	7.60	9.75	12.05
3 1/2	....	.....	8.00	10.35	12.80
3 3/4	....	.....	.....	10.95	13.60
4	....	.....	.....	.....	14.40

Diam. Screw...in.	9/16	5/8	3/4	7/8	1
Diam. Head...in.	13/16	7/8	1	1 1/8	1 5/16
*Height Head..in.	3/8	27/64	1/2	19/32	21/32
Threads to Inch..	12	11	10	9	8
Length Under Head to Extreme Point, Inches: 1	$9.80	.....	.....	.....	.....
1 1/4	10.15	$10.50	.....	.....	.....
1 1/2	10.50	10.85	$15.95	.....	.....
1 3/4	11.15	11.50	16.35	$25.70	.....
2	11.80	12.15	16.75	26.20	$33.60
2 1/4	12.60	13.00	17.80	27.60	35.75
2 1/2	13.50	13.90	18.80	29.10	38.00
2 3/4	14.25	14.65	19.80	30.60	40.20
3	15.00	15.40	20.90	32.15	42.40
3 1/4	15.70	16.10	22.10	34.10	45.00
3 1/2	16.45	16.85	23.15	36.95	47.80
3 3/4	17.15	17.50	24.40	37.90	50.40
4	17.85	18.35	25.60	39.80	53.20
4 1/2	.....	19.75	27.00	43.15	58.60
5	.....	.....	.....	46.50	63.90

*Side height of head.

N.C. standard threads will be furnished unless otherwise specified. For steel, add 25 per cent to net price of regular. Flat fillister heads, made to order only. Special price on extra finished heads and case hardened screws.

Screws one inch and less in diameter, and four inches and less in length, have threads cut 3/4 length of the body. Beyond four inches in length, threads are cut 1/2 length of the body.

Case Hardened Square Head and Headless Set Screws

Square Head — Cup Point — Headless

Price, per 100

Diam. Screw in.	1/4	5/16	3/8	7/16	1/2	9/16
Threads to Inch	20	18	16	14	13	12
Length under Head to Extreme Point, Inches: 1/2	$2.80	$3.15	$3.65	.....	.....	.....
5/8	2.85	3.20	3.70	$5.35	$6.55	.....
3/4	2.90	3.25	3.75	5.45	6.65	$11.15
7/8	3.10	3.40	4.00	5.55	6.75	11.35
1	3.25	3.55	4.30	5.65	6.85	11.55
1 1/4	3.60	3.90	4.80	6.15	7.60	11.75
1 1/2	3.95	4.20	5.25	6.65	8.35	11.95
1 3/4	4.25	4.70	5.90	7.25	9.10	12.90
2	4.55	5.20	6.55	7.90	9.80	13.80
2 1/4	4.80	5.65	7.15	8.65	10.60	14.85
2 1/2	5.10	6.15	7.75	9.45	11.40	16.00
2 3/4	5.35	6.60	8.40	10.15	12.15	17.15
3	5.65	7.10	9.00	10.90	12.35	18.25
3 1/4	....	....	....	11.70	14.15	19.75
3 1/2	....	....	....	12.45	15.35	21.20
3 3/4	....	....	....	13.25	16.60	22.70
4	....	....	....	14.00	17.85	24.20
*Add for each 1/4 in. to 6 in.	.70	.90	1.30	1.60	2.00	2.40

Diam. Screw in.	5/8	3/4	7/8	1	1 1/8	1 1/4
Threads to Inch	11	10	9	8	7	7
Length under Head to Extreme Point, Inches: 3/4	$11.55	.....	.....	.....	.....	.....
7/8	11.75	.....	.....	.....	.....	.....
1	11.95	$21.10	.....	.....	.....	.....
1 1/4	12.15	21.50	$35.70	.....	.....	.....
1 1/2	12.35	21.90	36.20	$47.50	.....	.....
1 3/4	13.30	22.30	36.70	48.10	$62.55	.....
2	14.20	22.70	37.20	48.70	63.25	$82.25
2 1/4	15.30	24.40	39.80	51.50	66.90	87.00
2 1/2	16.50	26.10	42.30	53.35	70.70	91.85
2 3/4	17.65	27.80	44.80	57.20	74.45	96.70
3	18.85	29.35	47.40	59.85	77.80	101.25
3 1/4	20.40	31.30	50.00	63.25	82.20	106.95
3 1/2	21.90	33.20	52.80	66.65	86.65	112.70
3 3/4	23.30	35.20	55.60	69.75	90.70	118.00
4	24.85	37.10	58.25	73.20	95.10	123.80
4 1/4	25.40	39.50	61.15	77.50	100.65	130.85
4 1/2	27.95	41.85	63.85	82.15	106.75	138.85
4 3/4	.....	44.35	66.70	86.40	112.35	146.15
5	.....	.....	69.60	90.85	118.20	153.70
*Add for each 1/4 in. to 6 in.	3.20	4.00	6.40	8.80	11.20	14.40

*Lengths longer than 6 inches, prices quoted on receipt of specifications.

Cup and oval point set screws are regular.

Other points are special, prices quoted on specifications.

Screws are furnished with U.S.S. threads.

Headless set screws take same list as regular, measurements being taken over all.

Brass Set Screws

Cup Point

List Per Hundred

Diameter of Screw...in.	1/4	5/16	3/8	1/2	5/8
Threads per Inch.....	20	18	16	13	11
Length, Inches: 1/2	$8.00	$9.00	$11.25	.....	.....
3/4	9.00	10.00	12.50	$13.75	.....
1	10.00	11.00	13.75	15.00	$15.00
1 1/4	11.00	12.00	15.00	16.25	17.50
1 1/2	12.00	13.00	16.25	17.50	21.25
1 3/4	13.00	14.00	17.50	18.75	23.75
2	14.00	15.00	18.75	20.00	26.25
2 1/2	.....	.....	21.75	23.00	31.25
3	.....	.....	24.75	26.00	36.25

Prices on headless set screws on application.

Iron Machine Screws

Flat, Round and Fillister Heads

Revised April 2, 1928

Packed 1 gross in a carton.

Price, per Gross

*Threads per Inch	56 64	48 56	40 48	32 40	32 36
Diameter	2	3	4	6	8
Length, Inches 1/8	$.24	$.25	$.26	$.28	....
3/16	.25	.26	.27	.29	$.35
1/4	.26	.27	.28	.30	.36
5/16	.27	.28	.29	.31	.37
3/8	.28	.29	.30	.32	.39
7/16	.29	.30	.31	.34	.41
1/2	.30	.31	.32	.36	.43
5/8	.32	.33	.34	.40	.47
3/4	.33	.34	.36	.43	.49
7/8	.34	.36	.38	.46	.53
1	...	...	.42	.50	.57
1 1/8	...	...	.46	.54	.63
1 1/4	...	....	.52	.58	.69
1 1/2	...	...	.60	.68	.82
1 3/4	...	...	...	.82	.95
2	...	...	...	.96	1.08
2 1/4	...	...	...	...	1.25
2 1/2	...	...	...	...	1.45
2 3/4	...	...	...	...	1.65
3	...	...	...	...	1.85

*Threads per Inch	24 32	24 28	20 28	18 24	16 24
Diameter	10	12	1/4	5/16	3/8
Length, Inches 3/16	$.45	....	....	....	....
1/4	.46	$.64	....	....	....
5/16	.48	.66	$.80	....	....
3/8	.50	.68	.84	$1.55	....
7/16	.52	.70	.88	1.60	....
1/2	.54	.74	.92	1.65	$2.20
5/8	.58	.82	1.00	1.75	2.40
3/4	.62	.86	1.05	1.80	2.50
7/8	.66	.92	1.10	1.90	2.65
1	.70	.98	1.20	2.00	2.85
1 1/8	.76	1.04	1.30	2.10	3.05
1 1/4	.82	1.10	1.40	2.25	3.25
1 1/2	.95	1.24	1.60	2.45	3.55
1 3/4	1.12	1.40	1.80	2.75	3.95
2	1.30	1.60	2.00	3.05	4.40
2 1/4	1.50	1.80	2.25	3.35	4.85
2 1/2	1.70	2.05	2.50	3.65	5.40
2 3/4	1.95	2.30	2.75	4.00	6.00
3	2.15	2.60	3.10	4.40	6.60

*The thread pitches (threads per inch) shown above are standard coarse and standard fine pitches, respectively, as recommended by the National Screw Thread Commission.

Screws up to and including one inch long, threaded to head; over one inch, threaded three quarters of length.

Machine screws are furnished to A. S. M. E. dimensions unless otherwise specified. Samples or measurements are necessary for other than these.

Prices of screws not listed, extras for annealing, oiling, bluing, galvanizing, nickeling or other finishes, will be furnished on application.

Coarse threads are standard. Fine thread supplied if necessary.

Brass and Nickel Plated Brass Machine Screws

Flat, Round and Fillister Heads

Revised April, 2, 1928

Packed 1 gross in a carton.

Price, per Gross

*Threads per Inch	56 64	48 56	40 48	32 40	32 36
Diameter	2	3	4	6	8
Length, Inches 1/8	$.28	$.34	$.40	$.52	....
3/16	.30	.36	.42	.54	$.70
1/4	.32	.38	.44	.58	.76
5/16	.34	.40	.46	.62	.82
3/8	.36	.42	.48	.66	.88
7/16	.38	.44	.50	.70	.94
1/2	.40	.46	.54	.76	1.02
5/8	.44	.52	.62	.92	1.20
3/4	.50	.58	.68	1.00	1.30
7/8	.56	.66	.74	1.10	1.45
1	...	...	.82	1.20	1.60
1 1/8	...	...	.90	1.30	1.75
1 1/4	...	...	1.00	1.45	1.90
1 1/2	...	...	1.25	1.65	2.15
1 3/4	...	...	....	1.95	2.45
2	...	...	....	2.25	2.75
2 1/4	...	...	....	....	3.10
2 1/2	...	...	....	....	3.45
2 3/4	...	...	....	....	3.80
3	...	...	....	....	4.15

*Threads per Inch	24 32	24 28	20 28	18 24	16 24
Diameter	10	12	1/4	5/16	3/8
Length, Inches 3/16	$.95	....	....	.....	.....
1/4	1.05	$1.60	....	.....	.....
5/16	1.15	1.70	$2.30	.....	.....
3/8	1.25	1.80	2.40	$4.60	.....
7/16	1.35	1.90	2.50	4.80	.....
1/2	1.45	2.00	2.65	5.00	$7.10
5/8	1.75	2.20	2.95	5.40	7.70
3/4	1.90	2.40	3.15	5.80	8.20
7/8	2.05	2.60	3.45	6.30	8.90
1	2.20	2.80	3.75	6.80	9.60
1 1/8	2.35	3.00	4.05	7.30	10.30
1 1/4	2.55	3.25	4.35	7.80	11.00
1 1/2	2.90	3.75	4.95	8.50	12.10
1 3/4	3.35	4.25	5.55	9.30	13.40
2	3.80	4.75	6.15	10.40	14.70
2 1/4	4.25	5.25	6.75	11.50	16.20
2 1/2	4.75	5.75	7.35	12.60	17.80
2 3/4	5.25	6.25	8.00	13.70	19.50
3	5.75	6.75	8.65	14.90	21.60

*The thread pitches (threads per inch) shown above are standard coarse and standard fine pitches, respectively, as recommended by the National Screw Thread Association.

Screws up to and including 7/8" long, threaded to head; over 7/8", threaded 7/8" of length.

Machine screws are furnished to A.S.M.E. dimensions unless otherwise specified. Samples or measurements are necessary for other than these.

Prices of screws not listed, extras for annealing, oiling, bluing, galvanizing, nickeling and other finishes will be furnished on application.

Coarse threads are standard. Fine thread supplied if necessary.

Steel Wood Screws

Flat Head

Round Head

Oval Head

Price, per Gross

Effective November 20, 1935

¼-Inch

No.	Per Gross
0	$.30
1	.30
2	.30
3	.32
4	.32

⅜-Inch

No.	Per Gross
0	$.32
1	.32
2	.32
3	.34
4	.34
5	.34
6	.38
7	.42
8	.46

½-Inch

No.	Per Gross
1	$.34
2	.34
3	.36
4	.36
5	.36
6	.40
7	.44
8	.48
9	.52
10	.56

⅝-Inch

No.	Per Gross
2	$.36
3	.38
4	.38
5	.40
6	.44
7	.48
8	.52
9	.56
10	.60
11	.64
12	.68

¾-Inch

No.	Per Gross
2	$.38
3	.40
4	.40
5	.42
6	.46
7	.50
8	.54
9	.58
10	.62
11	.66
12	.70
14	.90

⅞-Inch

No.	Per Gross
3	$.44
4	.46
5	.48
6	.52
7	.56
8	.60
9	.64
10	.68
11	.72
12	.76
14	1.05

1-Inch

No.	Per Gross
3	$.46
4	.48
5	.50
6	.54
7	.58
8	.62
9	.66
10	.70
11	.75
12	.80
14	1.10
16	1.40

1¼-Inch

No.	Per Gross
4	$.52
5	.54
6	.58
7	.62
8	.66
9	.70
10	.76
11	.84
12	.92
14	1.25
16	1.55
18	1.85

1½-Inch

No.	Per Gross
4	$.60
5	.62
6	.66
7	.70
8	.75
9	.80
10	.86
11	.95
12	1.05
14	1.35
16	1.70
18	2.05
20	2.40

1¾-Inch

No.	Per Gross
6	$.72
7	.78
8	.84
9	.90
10	.96
11	1.05
12	1.15
14	1.50
16	1.90
18	2.30
20	2.70

2-Inch

No.	Per Gross
6	$.78
7	.84
8	.90
9	1.00
10	1.10
11	1.20
12	1.30
14	1.60
16	2.00
18	2.40
20	2.80

2¼-Inch

No.	Per Gross
6	$.82
7	.88
8	.95
9	1.05
10	1.15
11	1.25
12	1.35
14	1.75
16	2.20
18	2.65
20	3.10

2½-Inch

No.	Per Gross
6	$.90
7	.96
8	1.05
9	1.15
10	1.25
11	1.35
12	1.50
14	1.85
16	2.40
18	3.00
20	3.60

2¾-Inch

No.	Per Gross
8	$1.10
9	1.20
10	1.32
11	1.45
12	1.65
14	2.05
16	2.60
18	3.20
20	3.80

3-Inch

No.	Per Gross
8	$1.20
9	1.30
10	1.42
11	1.55
12	1.75
14	2.25
16	2.80
18	3.40
20	4.00
24	4.95

3½-Inch

No.	Per Gross
10	$1.90
11	2.10
12	2.30
14	2.80
16	3.35
18	3.95
20	4.55
24	5.70

4-Inch

No.	Per Gross
12	$2.50
14	3.00
16	3.55
18	4.20
20	4.95
24	6.60

4½-Inch

No.	Per Gross
14	$3.30
16	3.85
18	4.50
20	5.25
24	7.10

5-Inch

No.	Per Gross
14	$3.65
16	4.20
18	5.00
20	6.00
24	7.60

Lengths and diameters not listed are specials. Such non-listed lengths and diameters take the list prices of the next longer or larger listed sizes.

The following varieties of steel screws can be furnished from this list at varying discounts: Flat, round, oval and fillister head; bright, blued; japanned, coppered, tinned, sherardized and galvanized.

Brass and Bronze Wood Screws

Flat Head

Round Head

Oval Head

Price, per Gross

Effective November 20, 1935

¼-Inch

No.	Per Gross
0	$.64
1	.66
2	.70
3	.76
4	.86

⅜-Inch

No.	Per Gross
0	$.66
1	.70
2	.76
3	.82
4	.90
5	.98
6	1.10

½-Inch

No.	Per Gross
1	$.78
2	.84
3	.90
4	.98
5	1.10
6	1.25
7	1.45
8	1.65

⅝-Inch

No.	Per Gross
2	$.90
3	1.00
4	1.10
5	1.25
6	1.40
7	1.60
8	1.80
9	2.05
10	2.30

¾-Inch

No.	Per Gross
2	$1.00
3	1.10
4	1.20
5	1.35
6	1.50
7	1.75
8	2.00
9	2.25
10	2.50
11	2.75
12	3.10

⅞-Inch

No.	Per Gross
4	$1.40
5	1.55
6	1.75
7	2.00
8	2.25
9	2.50
10	2.75
11	3.10
12	3.45

1-Inch

No.	Per Gross
4	$1.50
5	1.65
6	1.85
7	2.15
8	2.40
9	2.70
10	3.00
11	3.35
12	3.80
14	4.90

1¼-Inch

No.	Per Gross
6	$2.20
7	2.50
8	2.80
9	3.20
10	3.60
11	4.00
12	4.45
14	5.75

1½-Inch

No.	Per Gross
6	$2.45
7	2.80
8	3.20
9	3.60
10	4.00
11	4.55
12	5.10
14	6.50

1¾-Inch

No.	Per Gross
8	$3.65
9	4.10
10	4.60
11	5.20
12	5.85
14	7.40

2-Inch

No.	Per Gross
8	$4.00
9	4.50
10	5.10
11	5.75
12	6.55
14	8.15
16	10.30
18	12.45

2¼-Inch

No.	Per Gross
10	$5.60
11	6.35
12	7.15
14	9.00
16	11.35
18	13.60

2½-Inch

No.	Per Gross
10	$6.20
11	7.00
12	7.80
14	9.85
16	12.50
18	15.10

3-Inch

No.	Per Gross
12	$9.15
14	11.20
16	14.40
18	17.65

3½-Inch

No.	Per Gross
12	$11.20
14	13.25
16	16.65
18	20.20

Lengths and diameters not listed are specials. Such non-listed lengths and diameters take the list prices of the next longer or larger listed sizes.

The following varieties of brass and bronze screws can be furnished from this list at varying discounts: Flat, round, oval and fillister head; nickel and silver plated; bronzed and lacquered.

COACH OR LAG SCREWS

American Standard Regular
Square Heads and Gimlet Points

Effective Aug. 11, 1931
Per 100

Lgth. In.	¼ and 5/16	3/8	7/16	½	5/8	¾	7/8	1
1	$2.35	$2.85	$4.25	$5.25	.....	.....	.....	.....
1½	2.15	2.60	3.90	4.85	$7.95	$12.50	.....	.....
2	2.35	2.85	3.55	4.45	7.40	11.75	$18.60	$28.40
2½	2.55	3.10	3.90	4.85	6.85	11.00	17.60	27.10
3	2.80	3.40	4.30	5.30	7.50	11.90	16.80	26.05
3½	3.05	3.70	4.70	5.75	8.15	12.80	18.00	25.00
4	3.30	4.00	5.10	6.20	8.80	13.70	19.20	26.55
4½	3.55	4.30	5.50	6.65	9.45	14.60	20.40	28.10
5	3.80	4.65	5.90	7.10	10.10	15.50	21.60	29.65
5½	4.05	5.00	6.30	7.55	10.75	16.40	22.80	31.20
6	4.35	5.35	6.70	8.00	11.40	17.30	24.00	32.75
6½	4.65	5.70	7.10	8.45	12.05	18.20	25.20	34.30
7	4.95	6.05	7.50	8.90	12.70	19.10	26.40	35.85
7½	5.25	6.40	7.90	9.35	13.35	20.00	27.60	37.40
8	5.55	6.75	8.30	9.80	14.00	20.90	28.80	38.95
9	6.15	7.45	9.10	10.70	15.20	22.65	31.00	41.80
10	6.75	8.15	9.90	11.60	16.40	24.40	33.20	44.65
11	....	8.90	10.80	12.60	17.70	26.25	35.50	47.65
12	....	9.65	11.70	13.60	19.00	28.10	37.90	50.75
13					20.30	29.95	40.50	54.25
14					21.60	31.85	43.10	57.75
15					22.90	33.75	45.75	61.35
16					24.20	35.65	48.40	64.95

STANDARD PACKAGE QUANTITY.—¼" up to 4" 100; 5/16" up to 6", 100; 3/8" and 7/16" up to 8", 50; ½" up to 12", 50; 5/8" up to 8", 25.

Intermediate lengths take next higher list.

Carriage Bolts

Effective December 1, 1932

American Standard Regular Square Nuts

Length Inches	3/16 and ¼	5/16	3/8	7/16	½	9/16 and 5/8	¾
¾	$1.05	$1.60	$2.00	.....	.....	.....	.....
1	1.10	1.65	2.10	$3.50	$4.25	.....	.....
1¼	1.15	1.70	2.20	3.60	4.40	$8.35	.....
1½	1.20	1.80	2.35	3.75	4.60	8.60	$12.45
2	1.35	2.00	2.60	4.05	4.95	9.10	13.10
2½	1.55	2.25	2.90	4.40	5.35	9.60	13.75
3	1.70	2.50	3.20	4.75	5.75	10.10	14.40
3½	1.85	2.75	3.50	5.10	6.15	10.60	15.05
4	2.30	2.95	3.80	5.40	6.55	11.10	15.70
4½	2.45	3.40	4.10	5.75	6.95	11.60	16.35
5	2.60	3.60	4.50	6.10	7.35	12.10	17.00
5½	2.75	3.85	4.80	6.45	7.80	12.60	17.65
6	2.90	4.05	5.10	6.80	8.20	13.10	18.30
6½	3.65	4.90	6.30	8.25	9.75	13.60	18.95
7	3.85	5.15	6.65	8.70	10.20	14.10	19.60
7½	4.00	5.35	6.95	9.15	10.65	14.60	20.25
8	4.20	5.60	7.30	9.60	11.10	15.10	20.90
8½	4.35	5.80	7.60	10.05	12.05	15.60	21.50
9	4.55	6.05	7.95	10.50	12.50	16.10	22.20
9½	4.70	6.25	8.25	10.95	12.95	16.60	22.85
10	4.90	6.50	8.60	11.40	13.40	17.10	23.50
11	5.25	6.95	9.30	12.25	14.30	18.10	24.80
12	5.60	7.40	10.00	13.10	15.20	19.10	26.10
13	6.15	8.05	11.10	14.40	16.10	20.10	27.40
14	6.45	8.50	11.75	15.25	17.00	21.10	28.70
15	6.80	8.95	12.40	16.20	17.90	22.10	30.00
16	7.10	9.40	13.05	17.10	18.80	23.10	31.30
17	7.45	9.85	13.70	18.00	19.70	24.10	32.60
18	7.75	10.30	14.35	18.90	20.60	25.10	33.90

Machine Bolts

American Standard Regular
Square Heads and Square Nuts
Effective Dec. 1, 1932

Per 100

Length Inches	3/16 and ¼	5/16	3/8	7/16	½	9/16 and 5/8
¾	$1.10	$1.70	$2.25	.....	.....	.....
1	1.15	1.75	2.35	$3.95	$4.60	$8.10
1¼	1.25	1.80	2.45	4.10	4.80	8.35
1½	1.30	1.95	2.60	4.25	5.00	8.60
2	1.50	2.20	2.90	4.55	5.35	9.10
2½	1.70	2.45	3.20	4.85	5.75	9.60
3	1.85	2.70	3.50	5.20	6.15	10.10
3½	2.05	2.95	3.80	5.50	6.50	10.60
4	2.50	3.15	4.10	5.85	6.85	11.10
4½	2.65	3.60	4.40	6.15	7.25	11.60
5	2.80	3.80	4.80	6.50	7.65	12.10
5½	2.95	4.00	5.10	6.85	8.05	12.60
6	3.10	4.20	5.40	7.15	8.45	13.10
6½	3.80	5.10	6.50	9.20	10.15	13.60
7	4.00	5.35	6.85	9.65	10.60	14.10
7½	4.15	5.55	7.15	10.10	11.05	14.60
8	4.35	5.80	7.50	10.55	11.50	15.10
8½	4.50	6.00	7.80	11.00	11.95	15.60
9	4.70	6.25	8.15	11.45	12.40	16.10
9½	4.85	6.45	8.45	11.95	12.85	16.60
10	5.05	6.70	8.80	12.35	13.30	17.10
11	5.40	7.15	9.50	13.20	14.70	18.10
12	5.75	7.60	10.20	14.05	15.60	19.10
13	6.30	8.25	11.30	15.35	16.50	20.10
14	6.60	8.70	11.95	16.20	17.40	21.10
15	6.95	9.15	12.60	17.15	18.30	22.10
16	7.25	9.60	13.25	18.05	19.20	23.10
17	7.60	10.05	13.90	18.95	20.10	24.10
18	7.90	10.50	14.55	19.85	21.00	25.10
19	8.25	10.95	15.20	20.75	21.90	26.10
20	8.60	11.40	15.85	21.65	22.80	27.10
21					23.70	28.10
22					24.60	29.10
23					25.50	30.10
24					26.40	31.10
25					27.30	32.10

STANDARD PACKAGE QUANTITY.—¼" to 6" long. inc., 100; 5/16" to 7" long. inc., 50; 3/8" to12" long. inc., 50; 7/16" to 10" long. inc., 50; ½" to 10" long. inc., 50; ½", 10½" to 12" long. inc., 25; 9/16" and 5/8" to 8" long. inc., 25.

Length Inches	¾	7/8	1	1 1/8	1¼
1½	$10.95	$16.70	$23.25	......	......
2	11.60	17.60	24.40	......	......
2½	12.25	18.50	25.55	......	......
3	12.90	19.40	26.70	$45.90	$54.45
3½	13.55	20.30	27.85	47.20	56.10
4	14.20	21.20	29.00	48.50	57.75
4½	14.85	22.10	30.15	49.80	59.40
5	15.50	23.00	31.30	51.10	61.05
5½	16.15	23.90	32.45	52.40	62.70
6	16.80	24.80	33.60	53.70	64.35
6½	17.45	25.70	34.75	55.00	66.00
7	18.10	26.60	35.90	56.30	67.65
7½	18.75	27.50	37.05	57.60	69.30
8	19.40	28.40	38.20	58.90	70.95
8½	20.05	29.30	39.35	60.20	72.60
9	20.70	30.20	40.50	61.50	74.25
9½	21.35	31.10	41.65	62.80	75.90
10	22.00	32.00	42.80	64.10	77.55
11	23.30	33.80	45.10	66.70	80.85
12	24.60	35.60	47.40	69.30	84.15
13	25.90	37.40	49.70	71.90	87.45
14	27.20	39.20	52.00	74.50	90.75
15	28.50	41.00	54.30	77.10	94.05
16	29.80	42.80	56.60	79.70	97.35
17	31.10	44.60	58.90	82.30	100.65
18	32.40	46.40	61.20	84.90	103.95
19	33.70	48.20	63.50	87.50	107.25
20	35.00	50.00	65.80	90.10	110.55
21	36.30	51.80	68.10	92.70	113.85
22	37.60	53.60	70.40	95.30	117.15
23	38.90	55.40	72.70	97.90	120.45
24	40.20	57.20	75.00	100.50	123.75
25	41.50	59.00	77.30	103.10	127.05

Intermediate lengths take next higher list.

GROSS EXTRAS FOR ALL BOLT LISTS

ADD TO LIST BEFORE DEDUCTING DISCOUNTS

Per 100 Pieces — Diameter in Inches

	3/16 and ¼	5/16	3/8	7/16	½	9/16 and 5/8	¾	7/8	1	1 1/8	1¼
American Standard Regular Hexagon Heads..........	.15	.20	.30	.45	.65	1.00	1.40	2.20	3.00	5.00	7.00
American Standard Regular Hexagon Nuts...........	.10	.20	.30	.45	.50	.90	1.30	2.00	2.90	3.80	5.00
Bolts without nuts, deduct from lists................	.25	.35	.40	.70	.95	1.90	2.40	2.90	5.30	8.75	11.60

Semi-Finished Hexagon Nuts

U.S. Standard Regular and Jam Sizes Single Chamfer Tapped U.S. Standard (National Coarse)

Effective April 15, 1933

Diam. Bolt and No. of Threads	Per 100 Pieces	Width Nut Inches	Thickness of Nut, Inches Regular	Thickness of Nut, Inches Jam	Standard Container Quantity Regular	Standard Container Quantity Jam
1/4–20	$.75	1/2	1/4	5/16	15000	22000
5/16–18	1.00	19/32	5/16	7/32	9000	12500
3/8–16	1.35	11/16	3/8	1/4	6000	9000
7/16–14	1.90	25/32	7/16	5/16	3600	5100
1/2–13	2.40	7/8	1/2	5/16	3300	5300
9/16–12	3.30	31/32	9/16	11/32	2300	3600
5/8–11	4.00	1 1/16	5/8	3/8	1800	3000
3/4–10	5.70	1 1/4	3/4	7/16	1000	1800
7/8–9	8.75	1 7/16	7/8	1/2	650	1200
1 –8	12.00	1 5/8	1	9/16	500	850
1 1/8–7	16.70	1 13/16	1 1/8	5/8	350	600
1 1/4–7	22.70	2	1 1/4	3/4	270	440
1 3/8–6	32.00	2 3/16	1 3/8	13/16	200	350
1 1/2–6	41.90	2 3/8	1 1/2	7/8	150	260
1 5/8–5 1/2	61.20	2 9/16	1 5/8	15/16	120	220
1 3/4–5	80.90	2 3/4	1 3/4	1	95	160
1 7/8–5	100.00	2 15/16	1 7/8	1 1/16	80	140
2 –4 1/2	118.00	3 1/8	2	1 1/8	65	110

Semi-Finished S.A.E. Hexagon Nuts

Regular and Jam Sizes, Tapped S.A.E. Thread

Diam. Bolt and No. of Threads	Per 100 Pieces	Width Nut Inches	Thickness of Nut, Inches Regular	Thickness of Nut, Inches Jam	Standard Container Quantity Regular	Standard Container Quantity Jam
1/4–28	$.65	7/16	1/32	5/32	20000	28000
5/16–24	.75	1/2	17/64	3/16	14000	18000
3/8–24	.95	9/16	21/64	7/32	9000	13000
7/16–20	1.30	5/8	3/8	1/4	8500	10500
1/2–20	1.65	3/4	7/16	5/16	5000	8000
9/16–18	2.50	7/8	31/64	5/16	3300	5000
5/8–18	3.20	15/16	35/64	3/8	2500	4000
3/4–16	5.00	1 1/16	21/32	3/8	1600	3000
7/8–14	8.00	1 1/4	49/64	7/16	950	1800
1 –14	11.60	1 7/16	7/8	1/2	650	1200

Nuts with left-hand threads, prices on application.

Semi-Finished S.A.E. Hexagon Castellated Nuts

Tapped S.A.E. Threads

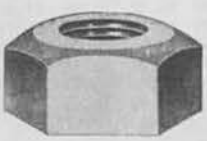
Diam. Bolt and No. Threads	Per 100 Pieces	Width Nut Inches	Height Nut Inches	Std. Container Quantity
1/4–28	$1.15	7/16	3/32	16000
5/16–24	1.35	1/2	21/64	11500
3/8–24	1.60	9/16	13/32	7500
7/16–20	2.00	5/8	29/64	6000
1/2–20	2.85	3/4	9/16	3800
9/16–18	$4.20	7/8	39/64	3000
5/8–18	4.90	15/16	23/32	1900
3/4–16	7.80	1 1/16	13/16	1200
7/8–14	10.75	1 1/4	29/32	850
1 –14	16.00	1 7/16	1	550

Hot Pressed and Forged Square Nuts

U. S. Standard Prices per 100 Pounds in 200-Pound Packages

Adopted January 2, 1924

Width Inches	Per 100 Pounds in 200-Lb. Packages Blank	Per 100 Pounds in 200-Lb. Packages Tapped	Average Number per 100 Pounds	Thickness Inches	Hole Inches	Bolt Inches
1/2	$13.00	$15.00	7,875	1/4	3/16	1/4
19/32	12.00	13.50	4,410	5/16	1/4	5/16
11/16	10.50	11.60	2,791	3/8	19/64	3/8
25/32	10.00	10.90	1,935	7/16	11/32	7/16
7/8	9.70	10.70	1,354	1/2	13/32	1/2
31/32	9.70	10.70	1,034	9/16	29/64	9/16
1 1/16	9.30	10.00	798	5/8	33/64	5/8
1 1/4	8.60	9.20	463	3/4	5/8	3/4
1 7/16	8.40	9.00	290	7/8	47/64	7/8
1 5/4	8.40	9.00	197	1	27/32	1
1 13/16	8.40	9.00	143	1 1/8	15/16	1 1/8
2	8.40	9.00	106	1 1/4	1 1/16	1 1/4
2 3/16	8.50	9.10	79	1 3/8	1 5/32	1 3/8
2 3/8	8.80	9.40	61	1 1/2	1 9/32	1 1/2
2 9/16	9.00	9.70	48	1 5/8	1 13/32	1 5/8
2 3/4	9.30	10.00	40	1 3/4	1 1/2	1 3/4
2 15/16	9.50	10.30	34	1 7/8	1 5/8	1 7/8
3 1/8	9.70	10.60	28	2	1 23/32	2



Hot Pressed and Forged Hexagon Nuts

U. S. Standard Prices per 100 Pounds in 200-Pound Packages

Adopted January 2, 1924

Width Inches	Per 100 Pounds in 200-Lb. Packages Blank	Per 100 Pounds in 200-Lb. Packages Tapped	Average Number per 100 Pounds	Thickness Inches	Hole Inches	Bolt Inches
1/2	$20.00	$22.50	9715	1/4	3/16	1/4
19/32	18.00	20.00	5839	5/16	1/4	5/16
11/16	14.00	15.60	3105	3/8	19/64	3/8
25/32	13.00	14.30	2229	7/16	11/32	7/16
7/8	12.20	13.50	1665	1/2	13/32	1/2
31/32	12.20	13.50	1236	9/16	29/64	9/16
1 1/16	11.40	12.40	881	5/8	33/64	5/8
1 1/4	10.10	11.00	547	3/4	5/8	3/4
1 7/16	9.90	10.80	362	7/8	47/64	7/8
1 5/8	9.90	10.80	230	1	27/32	1
1 13/16	9.90	10.80	179	1 1/8	15/16	1 1/8
2	9.90	10.80	127	1 1/4	1 1/16	1 1/4
2 3/16	10.10	11.00	92	1 3/8	1 5/32	1 3/8
2 3/8	10.30	11.20	75	1 1/2	1 9/32	1 1/2
2 9/16	10.50	11.40	59	1 5/8	1 13/32	1 5/8
2 3/4	10.80	11.70	50	1 3/4	1 1/2	1 3/4
2 15/16	11.00	12.00	40	1 7/8	1 5/8	1 7/8
3 1/8	11.20	12.30	32	2	1 23/32	2
3 5/16			28	2 1/8	1 13/16	2 1/8
3 1/2	Prices	Prices	24	2 1/4	1 15/16	2 1/4
3 7/8	Upon	Upon	17	2 1/2	2 11/64	2 1/2
4 1/4	Appli-	Appli-	13	2 3/4	2 27/64	2 3/4
4 5/8	cation	cation	10	3	2 5/8	3

Machine Screw Nuts

Square and Hexagon

Screw Size	Steel, per Gross Square	Steel, per Gross Hexagon	Brass, per Gross Square	Brass, per Gross Hexagon	Thread Coarse	Thread Fine	Diam. Flats In.	Thickness In.
2	$.40	$.45	$.95	$.95	56	64	3/16	1/16
3	.40	.45	.95	.95	48	56	3/16	1/16
4	.31	.34	.80	.80	40	48	1/4	3/32
5	.33	.36	1.00	1.00	40	44	5/16	3/64
6	.33	.36	1.00	1.00	32	40	5/16	3/64
8	.35	.40	1.25	1.25	32	36	11/32	1/8
10	.37	.43	1.40	1.40	24	32	3/8	1/8
12	.56	.63	2.40	2.40	24	28	7/16	5/32
1/4	.63	.72	2.80	2.80	20	28	7/16	5/32
5/16	1.10	1.35	5.70	5.70	18	24	9/16	7/32
3/8	1.50	1.70	7.80	7.80	16	24	5/8	1/4

Carbon Steel Lock Washers

Made of high grade steel, oil tempered and guaranteed as to workmanship and quality.

Cannot become interlocked, or tangled.

S.A.E. Light

For Filister Head Machine Screws

Bolt Size	Per 1000	Wire Section Inches
2	$2.45	.022x.022
4	2.30	1/32x.022
6	2.10	1/32x1/32
8	1.95	3/64x1/32
10	1.75	3/64x3/64
12	1.95	1/16x3/64
3/16	1.75	3/64x3/64

For Round Head Machine Screws

2	$2.45	1/32x.022
4	2.30	3/64x1/32
6	2.20	1/16x1/32
8	2.05	5/64x1/32
10	1.75	5/64x3/64
12	2.05	3/32x3/64
3/16	1.75	5/64x3/64

For Standard Bolts

Bolt Size	Per 1000	Wire Section Inches
14	$2.10	3/32 x3/64
1/4	2.10	3/32 x3/64
5/16	2.75	1/8 x3/64
3/8	3.60	1/8 x1/16
7/16	5.15	5/32 x1/16
1/2	5.20	11/64x1/16
9/16	8.40	3/16 x3/32
5/8	12.00	13/64x3/32
11/16	18.80	7/32 x1/8
3/4	20.70	1/4 x1/8
7/8	37.50	17/64x5/32
1	60.00	5/16 x5/16
1 1/8	77.45	3/8 x5/16
1 1/4	86.00	7/16 x5/16
1 3/8	136.00	7/16 x1/4
1 1/2	165.00	1/2 x1/4

S.A.E. Standard

For Filister Head Machine Screws

2	$2.45	1/32x.022
4	2.30	1/32x1/32
6	2.15	3/64x1/32
8	1.95	3/64x3/64
10	1.75	1/16x3/64
12	1.95	1/16x1/16
3/16	1.75	1/16x3/64

For Round Head Machine Screws

2	$2.45	1/32x1/32
4	2.30	1/16x1/32
6	2.15	5/64x1/32
8	2.05	5/64x3/64
10	2.00	3/32x3/64
12	2.25	3/32x1/16
3/16	2.00	5/32x3/64

For Standard Bolts

14	$2.25	3/32 x1/16
1/4	2.25	3/32 x1/16
5/16	3.00	1/8 x1/16
3/8	3.75	1/8 x3/32
7/16	6.40	5/32 x1/8
1/2	7.60	11/64x1/8
9/16	10.25	3/16 x1/8
5/8	15.80	13/64x5/32
11/16	19.60	7/32 x3/16
3/4	25.60	1/4 x3/16
7/8	39.30	17/64x3/16
1	65.70	5/16 x1/4
1 1/8	90.00	3/8 x1/4
1 1/4	124.00	7/16 x1/4
1 3/8	140.00	7/16 x5/16
1 1/2	170.00	1/2 x3/16

S.A.E. Heavy

For Filister Head Machine Screws

2	$2.45	1/32x1/32
4	2.30	3/64x1/32
6	2.15	3/64x3/64
8	1.95	1/16x3/64
10	1.75	1/16x1/16
12	1.95	5/64x1/16
3/16	1.75	1/16x1/16

For Round Head Machine Screws

2	$2.50	3/64x1/32
4	2.35	5/64x1/32
6	2.15	5/64x3/64
8	2.05	3/32x3/64
10	2.20	3/32x1/16
12	2.40	1/8x3/64
3/16	2.20	3/32x1/16

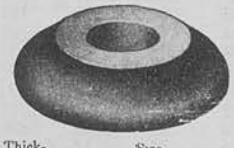
For Standard Bolts

14	$2.35	3/32 x5/64
1/4	2.35	3/32 x5/64
5/16	3.50	1/8 x3/32
3/8	4.80	1/8 x1/8
7/16	8.30	5/32 x5/32
1/2	11.90	11/64x11/64
9/16	15.35	3/16 x3/16
5/8	20.80	13/64x13/64
11/16	27.00	7/32 x7/32
3/4	34.00	1/4 x1/4
7/8	51.60	17/64x17/64
1	71.00	5/16 x5/16
1 1/8	109.05	3/8 x3/8
1 1/4	128.00	7/16 x5/16
1 3/8	144.00	7/16 x3/8
1 1/2	195.20	1/2 x3/8

Wrought Washers

Size of hole Inches	Outside Diameter Inches	Size of bolt Inches	200-Lb. Kegs per 100 Lbs.	Average No. in 100 lbs.
3/16	7/16	1/8	$41.00	64,000
1/4	9/16	3/16	33.00	39,400
5/16	3/4	1/4	27.00	15,000
3/8	7/8	5/16	24.00	11,250
7/16	1	3/8	20.50	6,800
1/2	1-1/4	7/16	17.50	4,300
9/16	1-3/8	1/2	16.50	2,600
5/8	1-1/2	9/16	16.00	2,250
11/16	1-3/4	5/8	16.00	1,300
3/4	1-3/4	11/16	16.00	1,580
13/16	2	3/4	15.50	900
7/8	2	13/16	15.50	1,000
15/16	2-1/4	7/8	15.50	800
1	2-1/4	15/16	15.50	830
1-1/16	2-1/2	1	15.50	568
1-1/8	2-1/2	1	15.50	700
1-3/16	2-3/4	1-1/8	15.50	520
1-1/4	2-3/4	1-1/8	15.50	580
1-5/16	2-3/4	1-1/4	15.50	450
1-3/8	3	1-1/4	15.50	364
1-7/16	3	1-3/8	15.50	430
1-1/2	3-1/4	1-3/8	15.50	275
1-9/16	3-1/4	1-1/2	15.50	360
1-5/8	3-1/2	1-1/2	15.50	256
1-11/16	3-1/2	1-5/8	16.50	320
1-3/4	3-3/4	1-5/8	16.50	220
1-13/16	3-3/4	1-3/4	16.50	270
1-7/8	4	1-3/4	16.50	197
1-15/16	4-1/4	1-7/8	16.50	240
2	4-1/4	1-7/8	16.50	260
2-1/16	4-1/2	2	16.50	200
2-1/8	4-1/2	2	16.50	180
2-1/4	4-1/2	2-1/8	16.50	200
2-3/8	4-1/2	2-1/4	16.50	122
2-5/8	5	2-1/2	16.50	106

Cast Iron Washers

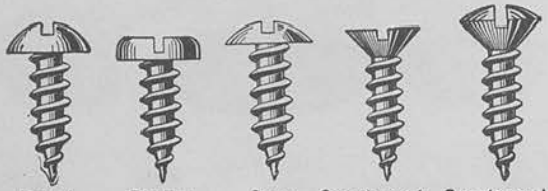


Size Bolt In.	O.D. In.	Size Hole In.	Thickness In.	Wt. Lbs.	Size Bolt In.	O.D. In.	Size Hole In.	Thickness In.	Wt. Lbs.
1/2	2 1/4	5/8	11/16	1/2	1	4	1 1/8	15/16	1 5/8
5/8	2 3/4	3/4	3/4	5/8	1 1/8	4 1/2	1 1/4	1	2 1/4
3/4	3	7/8	13/16	3/4	1 1/4	5	1 3/8	1 1/8	3
7/8	3 1/2	1	7/8	1 1/4	1 1/2	6	1 3/4	1 1/4	5

Price per 100 pounds upon application.

The well equipped shop gets the business. Make our catalogue your reference guide for shop equipment.

Type A Hardened Self Tapping Sheet Metal Screws



For joining light gages of sheet metal and for making fastenings to sheet metal up to 18 gage (.050 inch). Work equally well in pierced, clean punched or drilled holes.

Made with round heads, binding heads, countersunk flat heads and countersunk oval heads. Other sizes made to order. Furnished 1 gross and 1000 of a size in a box.

Screw No.	Plain Steel Per Gross	Plain Steel Per 1000	†Plated Finishes Per Gross	†Plated Finishes Per 1000	Diam. Deci. Equiv.	Screw Length Inches	*Styles Heads Available
4	$.24	$1.68	$.25	$1.75	.112	1/4	RBSFO
4	.25	1.75	.26	1.82	.112	3/8	RBSFO
4	.26	1.82	.27	1.89	.112	1/2	RBFO
4	.27	1.89	.28	1.96	.112	5/8	RBFO
4	.28	1.96	.30	2.10	.112	3/4	RBFO
6	.25	1.75	.26	1.82	.138	1/4	RBSFO
6	.26	1.82	.28	1.96	.138	3/8	RBSFO
6	.27	1.89	.29	2.03	.138	1/2	RBSFO
6	.28	1.96	.30	2.10	.138	5/8	RBFO
6	.29	2.03	.32	2.24	.138	3/4	RBFO
6	.30	2.10	.33	2.31	.138	7/8	RBFO
6	.31	2.17	.34	2.38	.138	1	RBFO
6	.34	2.38	.38	2.66	.138	1 1/4	RBFO
6	.37	2.59	.42	2.94	.138	1 1/2	RBFO
7	.27	1.89	.29	2.03	.155	3/8	RBFO
7	.28	1.96	.30	2.10	.155	1/2	RBFO
7	.29	2.03	.32	2.24	.155	5/8	RBFO
7	.30	3.10	.33	2.31	.155	3/4	RBFO
7	.31	2.17	.34	2.38	.155	7/8	RBFO
7	.32	2.24	.36	2.52	.155	1	RBFO
7	.35	2.45	.39	2.73	.155	1 1/4	RBFO
7	.38	2.66	.43	3.01	.155	1 1/2	RBFO
8	.29	2.03	.32	2.24	.165	3/8	RBSFO
8	.31	2.17	.34	2.38	.165	1/2	RBSFO
8	.33	2.31	.36	2.52	.165	5/8	RBSFO
8	.35	2.45	.38	2.66	.165	3/4	RBSFO
8	.37	2.59	.40	2.80	.165	7/8	RBFO
8	.39	2.73	.43	3.01	.165	1	RBFO
8	.43	3.01	.48	3.36	.165	1 1/4	RBFO
8	.47	3.29	.53	3.71	.165	1 1/2	RBFO
10	.34	2.38	.37	2.59	.191	3/8	RBSFO
10	.36	2.52	40	2.80	.191	1/2	RBSFO
10	.38	2.66	.43	3.01	.191	5/8	RBSFO
10	.40	2.80	.45	3.15	.191	3/4	RBSFO
10	.42	2.94	.48	3.36	.191	7/8	RBFO
10	.44	3.08	.51	3.57	.191	1	RBFO
10	.48	3.36	.53	4.06	.191	1 1/4	RFO
10	.52	3.64	.64	4.48	.191	1 1/2	RFO
10	.56	3.92	.70	4.90	.191	1 3/4	RFO
10	.60	4.20	.77	5.39	.191	2	RFO
12	.38	2.66	.45	3.15	.218	1/2	RBFO
12	.41	2.87	.49	3.43	.218	5/8	RBFO
12	.44	3.08	.53	3.71	.218	3/4	RBFO
12	.47	3.29	.57	3.99	.218	7/8	RBFO
12	.50	3.50	.62	4.34	.218	1	RBFO
12	.56	3.92	.71	4.97	.218	1 1/4	RFO
12	.62	4.34	.80	5.60	.218	1 1/2	RFO
14	.42	2.94	.50	3.50	.251	1/2	RBFO
14	.46	3.22	.55	3.85	.251	5/8	RBFO
14	.50	3.50	.60	4.20	.251	3/4	RBFO
14	.54	3.78	.65	4.55	.251	7/8	RBFO
14	.58	4.06	.70	4.90	.251	1	RBFO
14	.66	4.62	.81	5.67	.251	1 1/4	RFO
14	.74	5.18	.92	6.44	.251	1 1/2	RFO
14	.82	5.74	1.04	7.28	.251	1 3/4	RFO
14	.90	6.30	1.15	8.05	.251	2	RFO

*R—Round Head; B—Binding Head; S—Stove Head; F—Countersunk Flat Head; O—Countersunk Oval Head.

†Nickel, brass, copper, cadmium, or Parkerized. Special finishes, prices upon application.

Steel Studs

Milled From The Bar

Per 100

Diameter ... inches	3/8	7/16	1/2
Threads to Inch	16	14	13
Oval of Point, in Addition to Listed Length: 1 1/4	$5.40	$6.50	$7.05
1 1/2	5.60	6.75	7.40
1 3/4	5.85	7.00	7.70
2	6.10	7.20	8.05
2 1/4	6.35	7.35	8.35
2 1/2	6.60	7.70	8.65
2 3/4	6.80	7.95	9.00
3	7.05	8.20	9.30
3 1/4	....	8.40	9.65
3 1/2	....	8.65	9.95
3 3/4	....	8.90	10.25
4	....	9.25	10.60
4 1/4	....	....	10.75
4 1/2	....	....	10.90
4 3/4	....	....	11.20
5	....	....	11.55
5 1/2	....	....	.....
6	....	....	.....
*Add for Each 1/4 Inch	.80	1.00	1.25
Quantity per Package	100	50	50

Diameter ... inches	5/8	3/4	7/8	1
Threads to Inch	11	10	9	8
Oval of Point, in Addition to Listed Length: 1 1/2	$10.10	.....	.....	.....
1 3/4	10.40	.....	.....	.....
2	10.75	$15.40	.....	.....
2 1/4	11.05	15.95	.....	.....
2 1/2	11.40	16.45	$24.00	.....
2 3/4	11.75	17.00	25.00	.....
3	12.05	17.50	26.00	$34.00
3 1/4	12.40	18.05	27.00	35.50
3 1/2	12.75	18.60	28.00	37.00
3 3/4	13.05	19.10	29.00	38.50
4	13.40	19.60	30.00	40.00
4 1/4	13.65	20.05	30.80	41.00
4 1/2	13.90	20.40	31.50	42.00
4 3/4	14.15	20.85	32.60	43.00
5	14.40	21.20	33.00	44.00
5 1/2	14.85	22.00	34.50	46.00
6	15.35	22.75	36.00	48.00
*Add for Each 1/4 Inch	2.00	2.50	4.00	5.50
Quantity per Package	25	25	20	16

*Add for each 1/4 in. for lengths not exceeding 7 in.

Blank or Threaded Drop-Forged Thumb Screws

Drop-forged from steel and tumbled smooth. Special sizes and shapes and Tobin bronze screws to order.

Type G is made in 1/4, 5/16 and 3/8 inch diameters in all regular lengths.

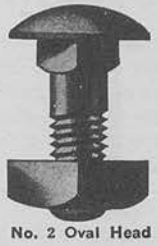
When threading is ordered, a commercial product is furnished, but when additional accuracy is required an extra charge will be made. When ordering, indicate pattern by letter. Unless otherwise specified, blanks will be furnished.

Elevator Bolts

No. 1 Large Countersunk Head

With Finished Points and Manufacturers' Standard Square Nuts

Effective April 1, 1927



No. 2 Oval Head

No. 4 Corrugated Head

No. 3 Slotted Key Head

No. 5 Slotted Button Head

Manufacturers' Standard List—Price, per 100

Length Inches	Diameter, Inches 3/16 and 1/4	5/16	3/8	Length Inches	Diameter, Inches 3/16 and 1/4	5/16	3/8
3/4	$3.30	$4.50	$6.00	2	$4.05	$5.75	$8.00
7/8	3.45	4.75	6.40	2 1/4	4.20	6.00	8.40
1	3.45	4.75	6.40	2 1/2	4.35	6.25	8.80
1 1/4	3.60	5.00	6.80	2 3/4	4.50	6.50	9.20
1 1/2	3.75	5.25	7.20	3	4.65	6.75	9.60
1 3/4	3.90	5.50	7.60	...	....	....	....

Stove Bolts

Flat Head

Round Head

List of May 1, 1934—Price, per 100

Length Inches	Diameter, Inches 5/32	3/16	1/4	5/16	3/8
3/8	$.57	$.67	.....	.....	.....
1/2	.60	.70	$1.12	.....	.....
5/8	.63	.73	1.18	.....	.....
3/4	.66	.76	1.25	$2.12	$2.90
7/8	.68	.79	1.31	2.20	3.00
1	.71	.83	1.38	2.27	3.10
1 1/8	.76	.86	1.44	2.34	3.20
1 1/4	.80	.90	1.51	2.41	3.30
1 3/8	.84	.96	1.57	2.50	3.40
1 1/2	.89	1.01	1.64	2.59	3.50
1 3/4	1.00	1.12	1.80	2.77	3.75
2	1.11	1.27	1.98	3.00	4.00
2 1/4	....	1.41	2.16	3.20	4.25
2 1/2	....	1.59	2.34	3.45	4.55
2 3/4	....	1.77	2.55	3.70	4.80
3	....	1.95	2.75	3.95	5.20
3 1/2	....	2.25	3.10	4.40	5.80
4	....	2.55	3.45	4.85	6.40
4 1/2	....	2.85	3.80	5.30	7.00
5	....	3.15	4.15	5.75	7.60

Standard Steel Taper Pins

Taper 1/4 inch to the foot.

Per 100

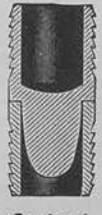
Size Inches	Diameter at Large End, Inches .156	.172	.193	.219	.250	.289
	Approximate Fractional Size, Inches 5/32	11/64	3/16	7/32	1/4	19/64
	No. 0	1	2	3	4	5
3/4	$1.80	$2.00	$2.20	$2.40	$2.70	$3.00
1	2.10	2.30	2.50	2.70	3.00	3.30
1 1/4	2.40	2.60	2.80	3.00	3.30	3.60
1 1/2	2.70	2.90	3.10	3.30	3.60	3.90
1 3/4	3.00	3.20	3.40	3.60	3.90	4.20
2	3.30	3.50	3.70	3.90	4.20	4.50
2 1/4	3.70	3.90	4.10	4.30	4.60	4.90
2 1/2	4.10	4.30	4.50	4.70	5.00	5.30
2 3/4	4.50	4.70	4.90	5.10	5.40	5.70
3	4.90	5.10	5.30	5.50	5.80	6.10
3 1/4	....	....	5.70	5.90	6.20	6.50
3 1/2	....	....	6.10	6.30	6.60	6.90
3 3/4	....	....	....	....	7.00	7.30
4	....	....	....	....	7.40	7.70

Size Inches	Diameter at Large End, Inches .341	.409	.492	.591	.706
	Approximate Fractional Size, Inches 11/32	13/32	1/2	19/32	23/32
	No. 6	7	8	9	10
3/4	$3.50	.....	.....	.....	.....
1	4.00	$6.50	$7.60	$10.80	$14.40
1 1/4	4.50	7.00	8.30	11.70	15.30
1 1/2	5.00	7.50	9.00	12.60	16.20
1 3/4	5.50	8.00	9.70	13.50	17.10
2	6.00	8.50	10.40	14.40	18.20
2 1/4	6.50	9.40	11.40	15.60	19.70
2 1/2	7.00	10.30	12.40	16.80	21.20
2 3/4	7.50	11.20	13.40	18.00	22.70
3	8.00	12.10	14.40	19.20	24.20
3 1/4	8.50	13.00	15.40	20.40	25.90
3 1/2	9.00	13.90	16.40	21.60	27.60
3 3/4	9.50	14.80	17.40	22.80	29.30
4	10.00	15.70	18.40	24.00	31.00
4 1/4	10.60	16.70	19.60	25.40	33.00
4 1/2	11.20	17.70	20.80	26.80	35.00
4 3/4	11.80	18.70	22.00	28.20	37.00
5	12.40	19.70	23.20	29.60	39.00
5 1/2	13.60	21.70	25.60	32.40	43.00
6	14.80	23.70	28.00	35.20	47.00

Brass Dowel Pins

These pins are made with ratchet thread so that they may be driven or screwed into place, and so that they can be readily removed in order to alter or repair the pattern.

Made in sizes to fit holes made by Jenning's bits, viz: 3/16, 1/4, 5/16, 7/16, 9/16, and 11/16 inch.

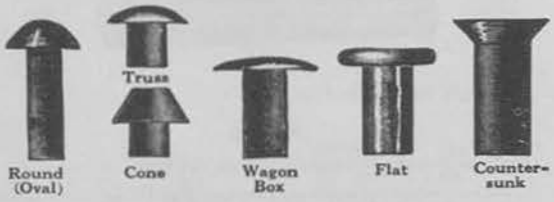


Sectional

No.	Size Pin In.	Fits Hole In.	Price per 100 Pairs	No.	Size Pin In.	Fits Hole In.	Price per 100 Pairs
1	1/8	3/16	$10.00	3	5/16	7/16	$22.50
1 1/2	3/16	1/4	12.50	4	7/16	9/16	32.50
2	1/4	5/16	16.00	5	1/2	11/16	50.00

Rivets

Standard Heads



Per Pound—In 200-Pound Kegs

List of August 11, 1931

Diam. In.	Approx. Decimal	Length, Inches 3¾ to 6	2¼ to 3½	1 to 2	¾ to ⅞	½ to ⅝	7/16	3/8	11/32
7/16	.437	.17	.17	.15	.15½	.16	.17	.18	.19
3/8	.375	.17	.17	.15	.15½	.16	.17	.18	.19
11/32	.344	.18½	.17½	.15½	.16	.16½	.17	.18	.19
5/16	.312	.18½	.17½	.15½	.16	.16½	.18	.18	.19
..	.300	.19	.18	.16	.16½	.17	.19	.19	.19
..	.284	.19	.18	.16	.16½	.17	.19	.19	.19
..	.259	.19	.18	.16	.16½	.17	.19	.19	.19
1/4	.250	.19	.18	.16	.16½	.17	.19	.19	.19
..	.238	.22	.20	.17	.17½	.18	.19	.20	.20
..	.219	.22	.20	.17	.17½	.18	.20	.20	.20
..	.203	.22	.20	.17	.17½	.18	.20	.21	.21
3/16	.187	.22	.20	.17	.17½	.18	.20	.21	.21
..	.180	.....	.....	.17	.17½	.19	.20	.21	.21
5/32	.156	.....	.....	.18	.18½	.19	.21	.22	.22
..	.148	.....	.....	.19	.19½	.20	.22	.23	.23
..	.134	.....	.....	.20	.20½	.21	.23	.25	.27
1/8	.125	.....	.....	.21	.21½	.22	.26	.29	.30
..	.109	.....	.....	.22	.22½	.23	.28	.31	.32
..	.095	.....	.....	.26	.26½	.27	.32	.36	.37
..	.083	.....	.....	.28	.28½	.29	.37	.42	.47

Diam. In.	Approx. Decimal	Length, Inches 5/16	9/32	1/4	7/32	3/16	5/32	1/8	3/32
7/16	.437	.20	.20	...	...	...	...	...	..
3/8	.375	.20	.20	...	...	...	...	...	...
11/32	.344	.20	.20	...	...	...	...	...	...
5/16	.312	.20	.20	...	...	...	...	...	...
..	.300	.20	.20	...	...	...	...	...	...
..	.284	.20	.20	.20	.21	...	...	...	...
..	.259	.20	.20	.20	.21	...	...	...	...
1/4	.250	.20	.20	.20	.21	.21	...	...	...
..	.238	.20	.20	.20	.21	.21	.22	...	...
..	.219	.21	.22	.22	.23	.23	.24	.24	.25
..	.203	.22	.22	.23	.24	.25	.25	.25	.26
3/16	.187	.22	.22	.23	.24	.25	.26	.27	.28
..	.180	.22	.22	.23	.24	.25	.26	.27	.28
5/32	.156	.23	.23	.24	.25	.26	.27	.28	.29
..	.148	.25	.25	.25	.26	.27	.29	.31	.32
..	.134	.29	.30	.30	.32	.35	.37	.39	.40
1/8	.125	.32	.33	.33	.35	.39	.42	.44	.47
..	.109	.34	.36	.37	.38	.43	.47	.52	.57
..	.095	.39	.41	.42	.43	.47	.52	.57	.62
..	.083	.52	.54	.57	.60	.60	.62	.65	.67

The length of Rivets is measured from the end to the under side of head, when this is square with the shank. For Countersunk or Lentil Head, length is measured from end to largest diameter of head.

Intermediate lengths and diameters take list of nearest smaller size.

Unless otherwise specified we will ship kegs containing 200 to 250 pounds of rivets.

The following extras are a part of the rivet list.

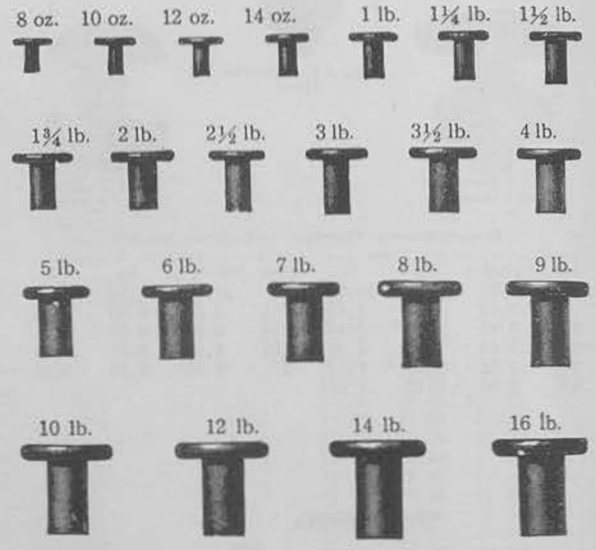
100 pound kegs	add .01 to list
50 " boxes	" .03 " "
25 " "	" .04 " "
5 or 10 pound packages	" .05 " "
1 pound packages	" .08 " "

Extras for metallic tinning or wash tinning quoted on application.

Boiler and Structural Rivets

Cone Head   Countersunk Head   Button Head

TINNERS' RIVETS



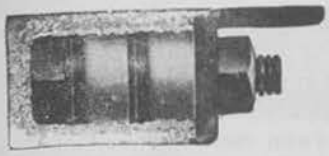
Refined soft iron. Also known as Thousand or Coopers' Rivets.

Mfgrs. Standard List, Effective August 9, 1920

SIZE	List Price per Thousand in Packages **BLACK**	SIZE	List Price per Thousand in Packages **TINNED**
8 oz.	$0.32	8 oz.	$0.32
10 oz.	.36	10 oz.	.36
12 oz.	.41	12 oz.	.41
14 oz.	.45	14 oz.	.45
1 lb.	.48	1 lb.	.48
1¼ lb.	.54	1¼ lb.	.54
1½ lb.	.62	1½ lb.	.62
1¾ lb.	.67	1¾ lb.	.67
2 lb.	.72	2 lb.	.72
2½ lb.	.83	2½ lb.	.83
3 lb.	.96	3 lb.	.96
3½ lb.	1.09	3½ lb.	1.09
4 lb.	1.20	4 lb.	1.20
5 lb.	1.30	5 lb.	1.30
6 lb.	1.50	6 lb.	1.50
7 lb.	1.75	7 lb.	1.75
8 lb.	2.00	8 lb.	2.00
9 lb.	2.20	9 lb.	2.20
10 lb.	2.40	10 lb.	2.40
12 lb.	2.64	12 lb.	2.64
14 lb.	3.08	14 lb.	3.08
16 lb.	3.52	16 lb.	3.52
18 lb.	3.78	18 lb.	3.78
20 lb.	4.20	20 lb.	4.20

The "CINCH" Anchoring System

METHOD OF INSTALLATION

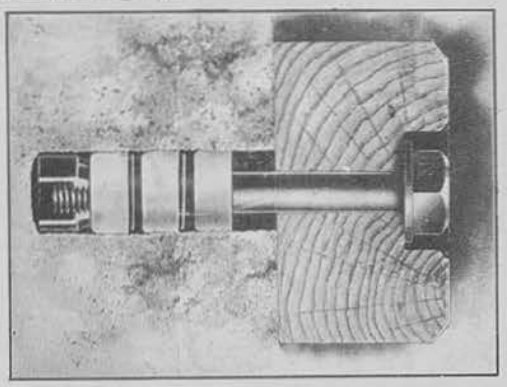


Plain two-unit Cinch anchor (Installed)

Ensure your Factor of Safety by using "CINCH" ANCHORS which can be compounded to meet all specifications and requirements.

PLAIN UNITS — Drill hole to exact diameter and depth required. Insert bolt, follow with unit (iron member on bolt head) and caulk in tightly with Caulking tool or piece of thick piping or tubing. Follow and expand additional units (one or two) in same manner.

THREADED UNITS — Insert threaded unit assembled on short dummy bolt (no head) and caulk in tightly. Add extra plain units (one or two) if required, withdraw dummy bolt.



Three-Unit Threaded Cinch Anchor (Installed)

The "CINCH" Anchoring System is based on a mechanically perfect method employing the principles of the wedge, screw and lever. Each unit forms a true conical truss, and when compounded to three (3) units a holding power is obtained which exceeds the actual breaking strength of *any* bolt (one, two or three units may be used according to the safe working load requirements). Installation is rapid, simple and cheap. The grip is instantaneous and permanent.

PRICE PER HUNDRED

TWO-UNIT ANCHORAGES

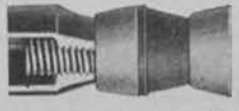
Consisting of 4 pieces—2 irons and 2 lead alloys—*without bolts.* One-unit plain and one-unit threaded, or both units plain.

TWO-UNIT ANCHORAGE, PLAIN

Use two units for anchorage of ordinary strength.
(Bolts not included)

Diameter of bolt sizes	Price per 100 Sets 2 Irons 2 Leads	Weight per 100 in lbs.	Quantity per box	Minimum depth of Hole for two units	Diameter of hole and Drill Required
3/16	$15.00	4.5	100	7/8	1/2
1/4	17.00	7.5	100	1 1/16	5/8
5/16	18.00	7.5	100	1 1/16	5/8
3/8	25.00	13	100	1 1/2	3/4
7/16	30.00	13	100	1 1/2	3/4
1/2	38.00	24	100	1 3/4	1
5/8	50.00	31	100	1 7/8	1 1/8
3/4	70.00	59	50	2 1/2	1 3/8
7/8	95.00	75	25	2 3/4	1 1/2
1"	125.00	98	25	3 1/4	1 5/8
1 1/8	280.00	187	25	4 1/2	2
1 1/4	300.00	234	25	4 3/4	2 1/4
1 1/2	450.00	362	25	5 1/4	2 5/8

Discount quoted on application
Two-Unit Anchorage, Threaded



Use hexagon-headed bolts for 5/8" upwards

Light Duty Construction

PRICE PER HUNDRED

PLAIN ONE-UNIT ANCHORAGE

Diameter of bolt sizes	Price per 100 Sets 1 Iron 1 Lead	Weight per 100 in lbs.	Quantity per box	Minimum depth of Hole	Diameter of hole and Drill Required
3/16	$7.50	2 1/4	100	5/8	1/2
1/4	8.50	3 3/4	100	5/8	5/8
5/16	9.00	3 3/4	100	5/8	5/8
3/8	12.50	6 1/2	100	7/8	3/4
7/16	15.00	6 1/2	100	7/8	3/4
1/2	19.00	12	100	1"	1"

THREADED

ONE-UNIT ANCHORAGE

Diameter of bolt sizes	Price per 100 Sets 1 Iron 1 Lead	Weight per 100 in lbs.	Quantity per box	Minimum depth of Hole	Diameter of hole and Drill Size
3/16	$9.38	2 1/2	100	5/8	1/2
1/4	10.63	4	100	5/8	5/8
5/16	11.25	4	100	5/8	5/8
3/8	15.63	7	100	7/8	3/4
7/16	18.75	7	100	7/8	3/4
1/2	23.75	14	100	1"	1"

CINCH BRAND CALKING TOOLS

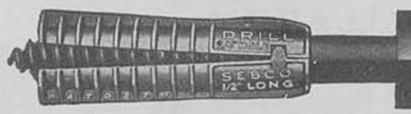
Discounts quoted on application

—

Prices on larger sizes special quotation

Diameter of Bolt	Price each
3/16	$1.00
1/4	1.00
5/16	1.00
3/8	1.25
7/16	1.25
1/2	1.50
5/8	1.75
3/4	2.50
7/8	7.00
1"	9.75

SEBCO
Star Expansion Bolt Co. Ltd.



TYPE 1900

LAG SCREW EXPANSION SHIELDS

MALLEABLE IRON

Made of malleable iron of high tensile strength. Circular projecting ribs grip into sides of hole, checking any tendency to slip.

Sizes and List Prices

Catalogue Number	Diam. of Lag Screw with Which Shield is Used	List Price Per 100 (Without Lag Screws)	Length of Shield	Outside Diameter and Drill Required	Quantity in Standard Package	Quantity in Standard Shipping Carton	Shipping Weight Per 100
LONG STANDARD SIZES							
1910	3/16"	$15.00	1 "	3/8"			2½ lbs.
1915	1/4"	15.00	1½"	1/2"	100	500	5½ lbs.
1920	5/16"	18.00	2 "	1/2"			7 lbs.
1925	3/8"	25.00	2¾"	5/8"			12 lbs.
1935	1/2"	38.00	3½"	3/4"	50	250	19 lbs.
1945	5/8"	45.00	3½"	7/8"	25	125	29½ lbs.
1955	3/4"	65.00	3½"	1 "			31½ lbs.
SHORT STANDARD SIZES							
1918	1/4"	$15.00	1 "	1/2"			3½ lbs.
1923	5/16"	18.00	1½"	1/2"	100	500	5 lbs.
1928	3/8"	25.00	2 "	5/8"			9 lbs.
1938	1/2"	38.00	2 "	3/4"	50	250	11 lbs.
1948	5/8"	45 00	2 "	7/8"	25	125	15 lbs.
1958	3/4"	65.00	2 "	1 "			21 lbs.

When no length is specified Long Standard Shield will be furnished.

TYPE 100

Sizes and List Prices

Catalogue Number	Inside Diameter and Length of Anchor	List Price Per 100 (Without Screws)	Use with Screw Numbers	*Outside Diameter and Drill Required	Quantity in Standard Package	Quantity in Standard Shipping Carton	Shipping Weight Per 100
125	3/8x1 "	13.00	22, 24, 26	9/16"	100	500	8 lbs.
127	3/8x2 "	15.00			50	250	14 lbs.
135	1/2x2 "	25.00	28, 30, 1/2"	3/4"	50	250	21 lbs.
145	5/8x2 "	30.00	5/8"	7/8"	25	125	29 lbs.
148	5/8x3½"	50.00	5/8"	7/8"	25	125	58 lbs.

*If electric drill is used, cutting edge should be 1/32" over size shown above.

Instructions for Ordering

It is customary to order anchors alone, as they are used with ordinary screws. Length of screw needed is determined by adding length of anchor to thickness of material to which fastening is to be made.

DOUBLE EXPANSION SHIELDS

PATENTED

Malleable Iron
For Use With Machine Bolts

TYPE 7000

This is a new style of double expansion shield, which embodies the following innovations—new locking lugs on nut and collar permit easy expansion and are engaged at all times in the internal grooves of the sides. Over-lap spring holds shield together firmly, **—Will not come apart with rough usage.**

Sizes and List Prices

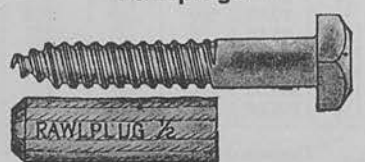
Catalogue Number	Diam. of Bolt with Which Shield is Used	List Price Per 100 (Without Bolts)	Safe Working Load Pounds	Length of Shield	Outside Diameter and Drill Required	Quantity in Standard Package	Quantity in Standard Shipping Carton	Shipping Weight Per 100
7015	1/4"	$15.00	200	1⅝"	1/2"			4½ lbs.
7020	5/16"	18.00	300	1⅞"	5/8"	100	500	7½ lbs.
7025	3/8"	25.00	450	2⅛"	3/4"			13½ lbs.
7030	7/16"	32.00	1000	2⅜"	7/8"	50	250	18 lbs.
7035	1/2"	38.00	1000	2⅜"	7/8"			18 lbs.
7045	5/8"	45.00	1500	2⅞"	1 "	25	125	27 lbs.
7055	3/4"	65.00	2000	4 "	1¼"	20	100	57 lbs.
7060	7/8"	95.00	2000	4½"	1½"	10	50	103 lbs.
7065	1 "	110.00	2000	4⅞"	1¾"	5	25	140 lbs.

No. 400 Sebco Scruin Lead Screw Anchors

Designed for high holding power and a larger range of screw sizes. The ribbed sides and bell shaped top fill irregular bore at top of the masonry hole. This locks the anchor in, preventing it from turning when tightening up the screw. Bell shaped throat also serves to center the screw when inserted.

Screw Size and Length of Anchor In.	Per 100 without Screws	Fractional Screw Size, In.	O.D. and Drill Req. In.	Std. Pkg.	Shipping Carton	Ship-Wt-Lbs. per 100
6–8 x 3/4	$5.00	1/8–3/16	1/4	100	1000	1
6–8 x 1½	5.60	1/8–3/16	1/4	100	1000	2
10–12–14x1	5.60	3/16–1/4	5/16	100	1000	2
10–12–14x1½	8.00	3/16–1/4	5/16	100	1000	3
16–18x1	6.25	5/16	3/8	100	1000	3
16–18x1½	9.00	5/16	3/8	50	500	4½
20–22–24x1¾	10.00	3/8	7/16	50	500	6

Rawlplugs



The Rawlplug is a hollow tube of stiffened longitudinal strands of jute fibre so cemented that once in place it is unaffected by moisture or change in temperature.

Available for use with lag screws 1/4 to 5/8-inch diameter, and wood screws numbers 3 to 20.

Prices upon application.

TOGGLE BOLTS

TYPE 2900-R

No. 5 R

TYPE 2900-F

No. 5 F

TYPE 2800

No. 1

*TYPE 2900-P

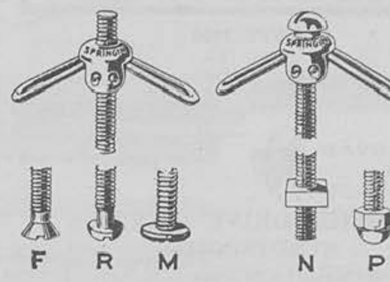
No. 3

An ideal fastening for lath, plaster, hollow tile, pressed boards, hollow metal, or sheet metal. Channel construction permits toggle head to fold closely over bolt and pass through small hole. Toggle head set off center to fall quickly into position. SEBCO toggles bear on extreme ends, avoiding breaking edges of brittle material.

TYPES 2800-2900
Sizes and List Prices

Catalogue Number	Diam. and Length of Screw	List Price Per 100	Size Drill Required	Shipping Weight Per 100	Number Pieces in a Box	Quantity in Standard Shipping Carton
TYPE 2800 MADE IN No. 1 STYLE ONLY						
2808	5/32x3″	$ 9.00		4 lbs.	100	500
2809	5/32x4″	10.00		4 lbs.		
2810	3/16x3″	9.50		4½ lbs.		
2811	3/16x4″	10.50	½″	5 lbs.		
2812	3/16x5″	12.00		6 lbs.		
2813	3/16x6″	12.50		6½ lbs.		
					100	500
2815	¼x3″	10.50		7 lbs.		
2816	¼x4″	11.75		8 lbs.		
2817	¼x5″	13.00		9 lbs.		
2818	¼x6″	14.00	⅝″	10½ lbs.		
2820	5/16x3″	17.50		14 lbs.		
2821	5/16x4″	18.00		15 lbs.		
2823	5/16x6″	20.00		19 lbs.		
					50	250
2825	⅜x3″	20.00		17 lbs.		
2826	⅜x4″	24.00		19 lbs.		
2828	⅜x6″	31.00		24 lbs.		
2835	½x3″	30.00	⅞″	26 lbs.		
2836	½x4″	32.00		31 lbs.	25	125
2838	½x6″	36.00		41 lbs.		
Nos. 2910 TO 2928 MADE R OR F HEAD SCREW, EXCEPT * (No. 3)						
2910	*3/16x3″	$ 9.50		4½ lbs.		
2911	*3/16x4″	10.50	½″	5 lbs.		
2912	3/16x5″	12.00		6 lbs.		
2913	3/16x6″	12.50		6½ lbs.		
					100	500
2915	¼x3″	10.50		7 lbs.		
2916	*¼x4″	11.75	⅝″	8 lbs.		
2917	¼x5″	13.00		9 lbs.		
2918	¼x6″	14.00		10½ lbs.		
2920	5/16x3″	17.50		14 lbs.		
2921	5/16x4″	18.00		14½ lbs.		
2923	5/16x6″	20.00		19 lbs.		
2925	⅜x3″	20.00	1″	16½ lbs.	50	250
2926	⅜x4″	24.00		19 lbs.		
2928	⅜x6″	31.00		24 lbs.		

No. 5500 Sebco Springin Toggle Bolts



R — with round head screw.
F — with flat head screw.
M — mushroom head, furnished in R type, ⅛-inch diameter only.
N—reverse R or F screw and add nut on any size. **P**, Plumbers' Toggle—Reverse R or F screw and add nut on any size.

Resilient wings are tempered spring steel with a cam action against saddle which throws them to open position.

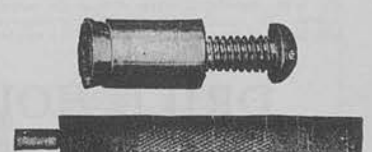
Threads are National Standard, not stove bolt threads.

Diam. and Length of Screw In.	Per 100	Size Drill Req. In.	No. Pieces in Box	Ship. Wt. Lbs. per 100	Diam. and Length of Screw In.	Per 100	Size Drill Req. In.	No. Pieces in Box	Ship. Wt. Lbs. per 100
With F or M Head Screws									
⅛x2	$6.50	⅜	100	1½	⅛x4	$7.00	⅜	100	2
⅛x3	6.75	⅜	100	1¾	....	....	..	...	....
With R, F, N or P Head Screws									
3/16x3	$6.85	½	50	3	¼x6	$8.95	⅝	50	9½
3/16x4	7.15	½	50	4	5/16x3	9.85	⅞	50	10
3/16x5	7.50	½	50	5	5/16x4	10.15	⅞	50	12
3/16x6	7.80	½	50	5½	5/16x6	10.95	⅞	50	15
¼x3	7.85	⅝	50	6	⅜x3	11.50	⅞	50	13
¼x4	8.15	⅝	50	7	⅜x4	13.50	⅞	50	15½
¼x5	8.55	⅝	50	8	⅜x6	16.50	⅞	50	21
With R or N Head Screws									
½x4	$20.00	1⅛	25	27	½x6	$23.00	1⅛	25	36
Toggle Heads Only									
⅛	$6.25	⅜	..	½	5/16	$8.20	⅞	..	3
3/16	6.25	½	..	1	⅜	10.00	⅞	..	3½
¼	6.50	⅝	..	2	½	15.00	1⅛	..	4

Toggle heads only are furnished in bulk or to order.

No. 4000 Tampin Expansion Shields

For use with machine screws or bolts. For electrical installations and all similar attachments to concrete, brick, or stone. Wedge nut, threaded for standard machine bolts and screws.



All sizes have 2 fins on the conical nut which prevents the nut from turning in the lead. Special alloy lead sleeve.

*Size	Minimum Holes Required, Inches Diam.	†Depth	Std. Pkg.	Shipping Carton	Weight Pounds per 100	Price 100 Shields
6-32	5/16	½	100	1000	1	$3.80
8-32	5/16	½	100	1000	1	4.50
10-24	⅜	⅝	100	1000	2	4.95
12-24	½	⅞	50	500	5	6.50
¼	½	⅞	50	500	5	7.20
5/16	⅝	1	50	500	9	9.75
⅜	¾	1¼	50	250	13	12.00
7/16	⅞	1½	50	250	18	15.00
½	⅞	1½	50	250	17	15.00
⅝	1⅛	2	50	250	23	25.00

*Size of bolt or screw with which shield is used.
†A deeper hole should be used for soft masonry.

SEBCO DRYVIN

TYPE 3900

PATENTED

HAMMER-DRIVE ANCHORS

RUST-PROOFED

Dryvins furnished regularly with Single-head Nails. Dryvins with Double-head Nails for shipment from factory only, when specified, can be furnished in practically all sizes at no extra charge.

Dryvins are always supplied complete with nails.

Sizes and List Prices of DRYVINS

(All sizes listed show diameter and length of shield—not the nail.)

Catalogue Number	Size Diameter Length of Shield Not the Nail	List Price Per 100 (Complete with Nails)	Outside Diameter and Drill Required	Working Load, Pounds	Quantity in Standard Package	Quantity in Standard Shipping Carton	Shipping Weight Per 100
3910	3/16x 7/8"	$ 8.00	3/16"	60	100	1000	1.2 lbs.
3911	3/16x1 1/4"	9.00		100			1.6 lbs.
3915	1/4x1 "	10.00	1/4"	200	100	1000	2 lbs.
3916	1/4x1 1/4"	11.00		250			2 3/4 lbs.
3917	1/4x1 1/2"	12.00		300			3 lbs.
3920	5/16x1 1/4"	14.00	5/16"	250	100	1000	4 lbs.
3921	5/16x1 3/4"	16.00		300		500	5 1/2 lbs.
3923	5/16x2 1/4"	18.00		300		500	7 lbs
3924	5/16x2 3/4"	20.00		300		500	8 lbs.
3926	3/8x1 1/2"	18.00	3/8"	400	100	500	7 1/2 lbs.
3927	3/8x2 "	20.00		450	100	500	9 1/2 lbs.
3929	3/8x3 1/4"	25.00		500	50	250	13 lbs
3935	1/2x1 "	25.00	1/2"	200	100	500	9 1/2 lbs.
3937	1/2x2 1/4"	30.00		500	50	250	16 1/2 lbs.
3938	1/2x2 3/4"	32.00		550	50	250	19 lbs.
3939	1/2x3 1/2"	35.00		600	50	250	23 lbs

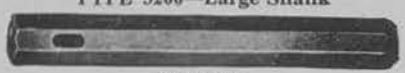
"Listed by Underwriters Laboratories"

DRYVINS are designated by the diameter and length of the shield. This is marked on each size. The diameter is the actual diameter of the shield. This also is the nominal diameter of both the mounting hole and proper size drill required. The length of the DRYVIN is measured from the top flange to the bottom flange of the shield. This is not the nail length.

DRILL HOLDERS

Rubber Grip Holder

TYPE 5200—Large Shank



Plain Holder

TYPE 1400—Large Shank

Knockout Pin

TYPE 5900

(Furnished with each drill holder, no charge.)

LIST PRICES. (See Note.)

Catalogue Number	Type	Shipping Weight Per Dozen	List Price Per Dozen
1400	Plain	9 1/2 lbs.	$24.00
5200	Rubber Grip	12 lbs.	48.00

SEBCO HAMRTWIST

MASONRY DRILL POINTS

PATENTED

SEBCO Type, 4200—Large Shank

The HAMRTWIST Masonry Drill Point is a fast and easy cutting tool giving a round and uniform hole in concrete, brick or stone.

HAMRTWIST Drill Points are made for use in Rubber Grip and Plain holders or Electric Hammer Chucks
Large shank recommended for use with Electric Hammers.

The HAMRTWIST Drill does not lose its diameter as other types of masonry drills inasmuch as there is no taper at the point. It can be resharpened on any grinding wheel. This point has a much longer life than it is possible to get from a four-point drill.

Faster drilling is obtained, when using HAMRTWIST Drills, by using rapid taps in place of heavy blows.

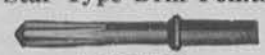
Sizes and List Prices of HAMRTWIST Drill Points

Catalog Number	Diameter	Length (Note)	List Price per Doz.	Quantity in Standard Package	Shipping Weight per Doz.
4210	3/16"	2 5/8"	$10.80	12	1/2 lb.
4212	7/32"	3 1/8"	10.80	12	1/2 lb.
4215	1/4"	3 1/4"	10.80	12	1/2 lb.
4217	9/32"	3 5/8"	11.80	12	3/4 lb.
4220	5/16"	4 1/4"	12.80	12	1 lb.
4222	11/32"	4 3/8"	13.80	12	1 lb.
4225	3/8"	5 1/16"	14.80	12	1 1/2 lbs.
4230	7/16"	5 1/4"	18.80	12	1 1/2 lbs.
4235	1/2"	5 9/16"	22.80	12	2 1/4 lbs.
4240	9/16"	4 3/8"	26.80	6	2 lbs.
4245	5/8"	5 1/2"	28.80	6	3 lbs.
		*SPECIAL LONG LENGTHS			
4216	1/4"	6"	$13.60	12	1 lb.
4218	9/32"	6"	15.00	12	1 1/4 lbs.
4221	5/16"	6"	19.20	12	1 1/2 lbs.
4223	11/32"	6"	20.40	12	1 3/4 lbs.
4238	1/2"	14"	64.00	12	4 1/4 lbs.

(NOTE) — Length given is overall, including the taper — Deduct approximately one inch for actual drilling depth.

*Special long lengths furnished when specified only.

Star Type Drill Points



TYPE 1300

Made in large shank only.

Catalogue Number	Diameter	List Price Per Dozen	Quantity in Standard Package	Shipping Weight Per Dozen
1315	1/4"	$ 8.50	12	1/2 lb.
1320	5/16"	8.50		1 lb.
1325	3/8"	8.50		1 lb.
*1335	1/2"	10.00	12	1 1/2 lbs.
1340	5/8"	12.00		2 1/2 lbs.
1345	5/8"	12.00	12	2 1/2 lbs.
1355	3/4"	14.00		4 1/2 lbs.
1360	7/8"	16.00	6	5 lbs.
1365	1 "	18.00	6	6 1/2 lbs.

*1/2" and larger are furnished in three-point style.

Sizes and List Prices of Star Chisel Points

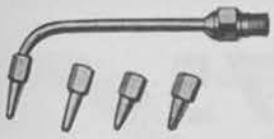
TYPE 7300

Made in large shank only.

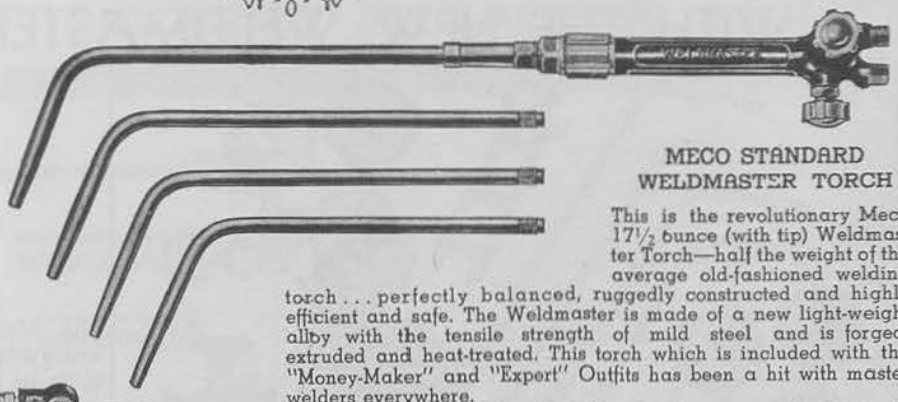
Catalogue Number	Size	List Price Per Dozen	Standard Package	Shipping Weight Per Dozen
7335	1/2"	$10.00	Loose	1 1/2 lbs.
7355	3/4"	$12.00		2 1/2 lbs.
7365	1"	$14.00		3 lbs.

Meco

LEAD BURNING ATTACHMENT



This assembly is suitable for battery work, fender and sheet metal welding. Indispensable around the repair and machine shop. Attachment with four tips, **$4.50**



MECO STANDARD WELDMASTER TORCH

This is the revolutionary Meco 17½ bunce (with tip) Weldmaster Torch—half the weight of the average old-fashioned welding torch . . . perfectly balanced, ruggedly constructed and highly efficient and safe. The Weldmaster is made of a new light-weight alloy with the tensile strength of mild steel and is forged, extruded and heat-treated. This torch which is included with the "Money-Maker" and "Expert" Outfits has been a hit with master welders everywhere.

The famous time-tested Meco Circle Mixer has been improved in this torch. Perfect mixture does not depend upon high gas pressures with this device—a problem when acetylene generators are being used. Gases in the Circle Mixer are formed into thin layers as they pass through the mixer. With passages bored to rifle smoothness, a soft, steady, ideal flame is obtained at any pressure, even with the largest tips.

Wheel handles on needle valves equipped with exclusive Meco Spring Tension Devices assure permanent accuracy of adjustment at all times. Grip is permanent blue fused-on finish with balance of handle in contrasting silvery type alloy.

Every type of welding and cutting attachment is available for the Meco Weldmaster Torch.

MECO STANDARD WELDMASTER TORCH with 4 tips, **$31.00**

EXTENSIONS—for the Weldmaster torch—very handy on particular jobs. 6-inch extension, **$3.20** 12-inch extension, **$6.25**

WELDMASTER CUTTING ATTACHMENT

Light, strong and highly simplified. Cuts up to 8 inches with ease. Interchangeable with welding head without shutting off gas at the tanks. New location of low pressure oxygen valve highly convenient—does not interfere with work to be cut and adjustment can be made with same hand in which torch is held.

WELDMASTER CUTTING ATTACHMENT with one cutting tip..... **$25.50**

TYPE B HY-SPEED CUTTING OUTFIT

CONSISTS OF THE FOLLOWING:

1—Type B Hy-Speed Cutting Torch with 2 Unit Tips, Nos L-1 and 2.

1—Type G-D Safe-T-Chek Oxygen Cutting Regulator with 3000-lb. gauge for indicating tank pressure and 200-lb. gauge for indicating delivery pressure

1—Type J Acetylene Regulator equipped with 500-lb. gauge for indicating tank pressure and 50-lb. gauge for indicating delivery pressure.

2—25-foot lengths ¼" corrugated Hose.

1—Pair Meco Cutting Goggles.

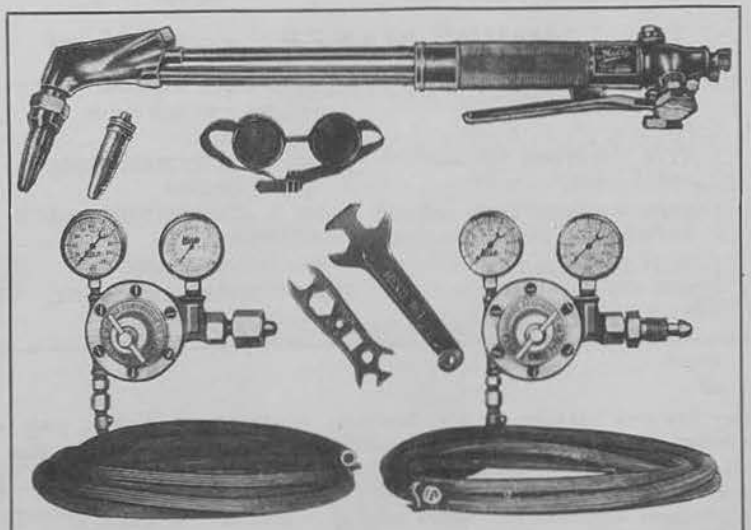
1—No. 2 Torch Wrench.

1—No. 1 Tank Wrench.

1—Meco Tripl-Flint Lighter.

1—Instruction Book.

Approximate Shipping Weight, 35 lbs.



For all purpose cutting, ordinarily found in the railroad shops, structural shops, scrap yards, boiler shops, and general manufacturing.

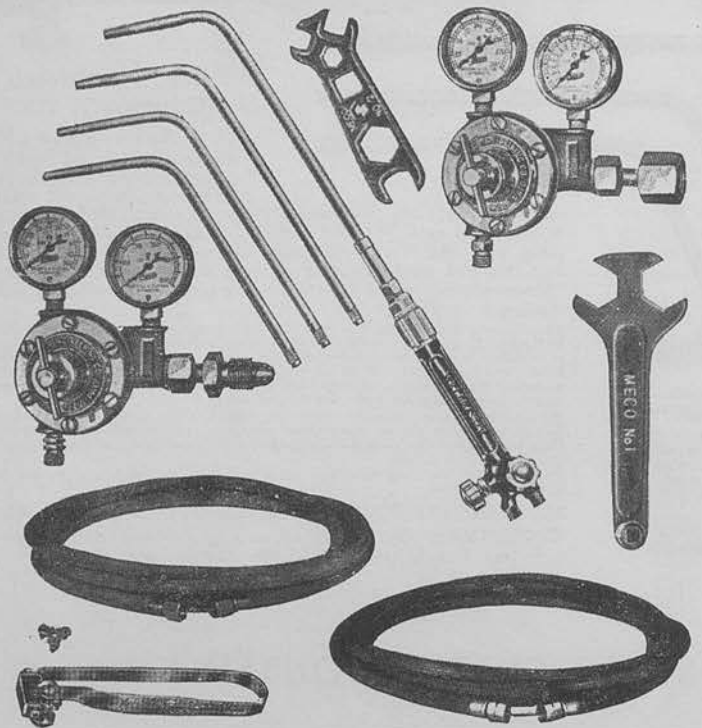
Codeword

Type B Hy-Speed Cutting Outfit complete, 2 unit tips ..... **$94.50** ABMUH

PERFORMANCE AND EFFICIENCY NOW WITHIN REACH OF ALL

THE "MONEY-MAKER" WELDING OUTFIT

WITH THE NEW WELDMASTER TORCH



The "MONEY-MAKER" consists of

1—**STANDARD WELDMASTER TORCH** with 4 tips, Nos. WG-2, 4, 6, 8.

1—**TYPE J. OXYGEN REGULATOR** with 2 gauges complete.

1—**TYPE J. ACETYLENE REGULATOR** with 2 gauges complete.

1—**TRIPL-FLINT LIGHTER** with flint holder—3 flints.

1—**No. 1 TANK WRENCH.**

1—**12½ FT. OXYGEN HOSE** ¼ inch coupled.

1—**12½ FT. ACETYLENE HOSE** ¼ inch coupled.

1—**No. 5 COMBINATION TORCH WRENCH.**

1—**No. 107 PARTS LIST.**

1—**No. 1 INSTRUCTION BOOK.**

(Be Sure to Specify Acetylene Tank Coupling)

Price

$75.00

COMPLETE

The Meco "Money-Maker" Outfit is everything that its name implies. Despite its low price the "Money-Maker" is a strictly professional, man-size welding outfit, capable of doing any welding job. Every unit is a standard Meco unit, both in quality and completeness. Nothing has been omitted for price purposes.

The torch is the new standard Weldmaster described on the next page, for which it is possible to buy every kind of useful fitting. Four tips covering a wide range of uses in the average shop are included. The cutting attachment which can be purchased for the Weldmaster Torch makes a highly efficient cutting tool. It is unusually handy for the steamfitter, plumber, welder or anyone doing portable work as the cutting attachment can be applied without turning off the tanks.

While there is no limit to welding operations with this outfit, where extensive heavy duty cutting is to be done we recommend the Meco "Expert" described on the next page. The "Expert" is especially equipped with heavy duty large capacity regulators for extensive cutting service as well as welding.

THE FIELD OF Oxy-Acetylene Welding Is Almost Unlimited

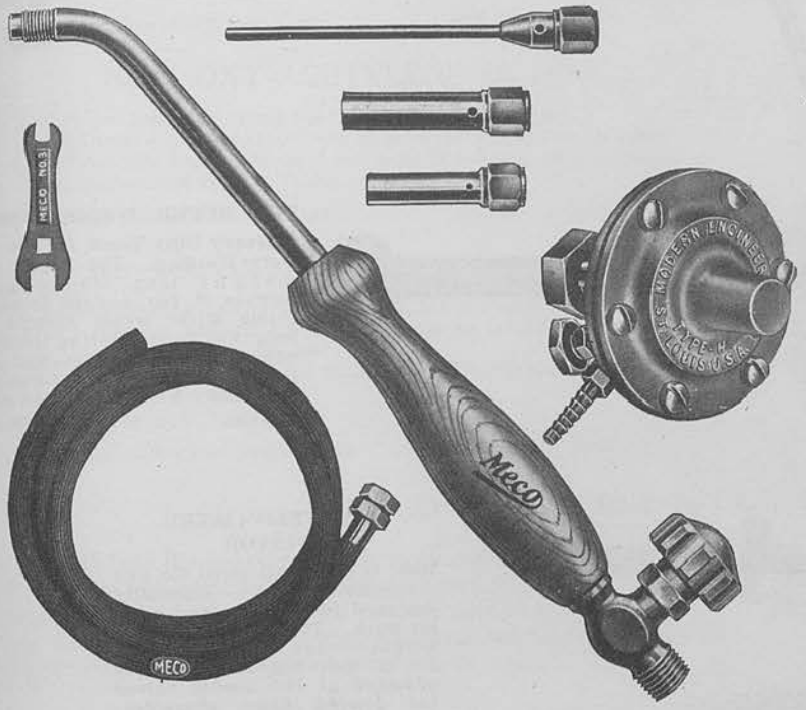
Every day new uses for the Oxy-Acetylene Welding Process are being developed. Many present uses such as pipe welding, steel erection, fracture welding, etc., are gaining increased favor because of the advances that have been made in Gas Welding Technique.

Outstanding new development for Oxy-Acetylene welding has been its use as a "building up" Tool. Bearing surfaces, surfaces subject to wear through impact, friction, corrosion or other causes can now be reclaimed for use at great savings. In the machine shop an oxy-acetylene outfit will frequently pay for itself on a single job—reclaiming worn machine parts to further use. Worn parts, built up in this way, will often give longer active service than new parts. This is the result of the welder's ability to use specific materials in building up to overcome the specific wearing problem. The mechanic using Oxy-Acetylene equipment now has a "putting on" tool.

The wide adaptability and all-around utility of the Oxy-Acetylene Welding Process in an unlimited range of work from the lightest to the heaviest makes it the most practical for general use. For metal cutting, the torch is the fastest, most efficient method known. The purchase of a modern gas welding outfit is a practical, profitable investment.

Meco

SUPER "JIFFY" SOLDERING AND BRAZING OUTFIT



The Tool With A Thousand Uses

The MECO Super "Jiffy" Soldering and Brazing Outfit is inexpensive, easy to operate and may be used anywhere that a quick flame is needed. Auto repair men, mechanics and electricians will find the "Jiffy" indispensible. For refrigeration and air conditioning installations, in the dentists laboratory, at the jewelers work bench, for paint burning and for the home repair kit it is unexcelled.

Here is shown the Super "Jiffy" which is equipped with a needle valve in the handle. The Super "Jiffy" is particularly desirable where the operator wishes to work at a distance from the tank, as it enables him to turn off the torch at the handle without returning to the tank.

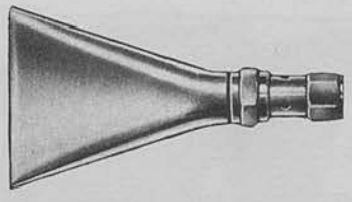
The Super "Jiffy" Outfit consists of 1 Jiffy Soldering and Brazing Torch with needle valve, 1 Type H Meco Mono-Seat Acetylene Regulator, 1 Large Brazing Tip, 1 Small Brazing Tip, 1 Radiator Tip, 6 feet of Acetylene Hose and 1 No. 4 wrench. **$15.00**

"JIFFY" SOLDERING COPPERS

Meco "Jiffy" Soldering Coppers are available in two sizes, ½" and ¾", and are adaptable to general soldering operations of all types. Being constructed of a copper alloy which readily gives off heat, they are essential to all types of soldering. Plumbers, tinners, refrigeration and air conditioning installation men find them indispensible to efficient workmanship.

No. 1 Soldering Copper, ½" **$2.00**

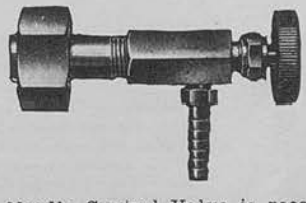
No. 2 Soldering Copper, ¾" **2.00**



PAINT BURNER

The "Jiffy" Paint Burner throws a wide, flat flame which is easily followed with a paint scraper while the paint is still hot. Since the flame can be accurately adjusted and the distance from the paint surface regulated in accordance with the heat, paint can be removed without scorching and without leaving short pigment to be scraped off. Removing paint with the "Jiffy" Paint Burner is a simpler and quicker operation, cutting the time in half. It is of the improved insulated type, preventing radiation of heat into the handle of the torch.

Meco "Jiffy" Paint Burner **$2.00**



The No. 57 Needle Control Valve is recommended as a substitute for the tank valve where the Type H Acetylene Regulator has been omitted. A convenient knurled handle wheel provides accurate adjustment and control.

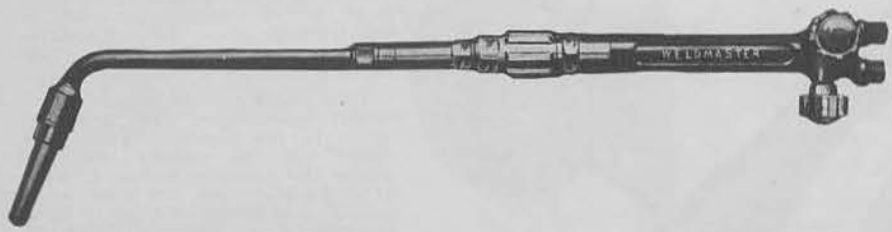
No. 57 Needle Valve **$2.50**

Meco

THE STANDARD WELDMASTER

Weighs but a fraction of old-fashioned welding torches of similar capacity. Has the famous exclusive MECO Circle Mixer, and spring-tension needle valves. The full goose-neck tips which come with the MECO Standard Weldmaster represent an advanced construction in this type of tip, and are highly recommended for general welding practice.

$31.00



THE SUPER WELDMASTER

A Heavy Duty Torch for Heavy Duty Welding. Far lighter in weight than old-fashioned torches, it, too, has the famous Circle Mixer which assures a long, hot flame—spring tension equipped needle valves, and all the other exclusive features of the new MECO Weldmaster torches. **$38.50**

THE WELDMASTER AVIATOR

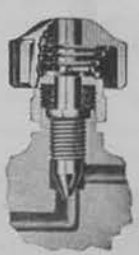
Here is the small torch for fine precision welding — especially designed for aviation and similar work. The Aviator is light-weight—made of MECO Alloy No. 1, and can be accurately adjusted at the needle valves for desired flame characteristics. The Aviator is a "precision tool" in the full sense of the word..... **$18.75**

THOROUGHLY TESTED

As with all new MECO products, Weldmaster torches were sent for test purposes to a number of large manufacturing plants. Orders for torches from these plants immediately followed in such volume that MECO production was taxed to fill these orders alone. General announcement of the new line had to be delayed until production could be greatly increased. Never, to our knowledge, has a piece of welding equipment been so spontaneously received. Users report reductions of 1 and 2 sizes in tips, and consequent reduction in gas consumption to perform the same work that had been done with the larger tips.

THE FAMOUS MECO CIRCLE MIXER

The MECO Circle Mixer handles all sizes of tips to the largest, even when using medium-pressure acetylene generators. The Circle Mixer actually mixes and stirs the gases together without setting up any resistance to their flow through the mixing chamber. The MECO Circle Mixer is an outstanding reason why you can throw a longer, hotter flame with a MECO Torch with the same gas pressures. In actual test the Circle Mixer proves its greater efficiency. Patent No. 1,996,991.



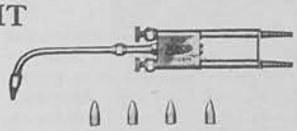
Spring Tension Needle Valves

Weldmaster Torches are equipped with the exclusive MECO spring tension device on the needle-valve which assures permanent adjustment at any point for the life of the torch. Adjustments can always be accurately made and held even if the welding handle is bumped or jolted. Patent No. 2,026,028.

Patented Retaining Ring

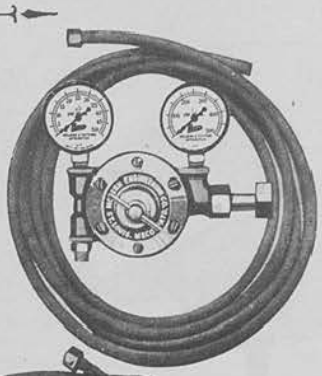
Another patented MECO feature of Weldmaster torches is the retaining ring illustrated here. This retaining ring holds the union nut in position and keeps it from slipping forward when the nut is loosened. In this way the torch is made easy to assemble and disassemble. Patent No. 1,828,135.

No. 0 OXY-ACETYLENE OUTFIT



1—Type N Lead Burning Torch, 4 tips, oxy-acetylene.
1—J Oxygen Regulator, with Low pressure delivery gauge only.
2—10-foot lengths Special Welding Hose.
1—Prestolite Tank Hose Coupling.

		Codeword
No. 0 Oxy-Acetylene Lead Burning Outfit	**$35.50**	GEBPO



No. 1 OXY-ACETYLENE OUTFIT

1—Type N Lead Burning Torch with tips Nos. N-0, N-1, N-2 and N-3.
1—Type J Oxygen Regulator equipped with gauge for indicating delivery pressure.
1—Type J Acetylene Regulator equipped with gauge for indicating delivery pressure.
2—10-foot lengths special $\frac{3}{16}$" Gum Tubing.

No. 1 Oxy-Acetylene Lead Burning Outfit	**$49.50**	GABAV

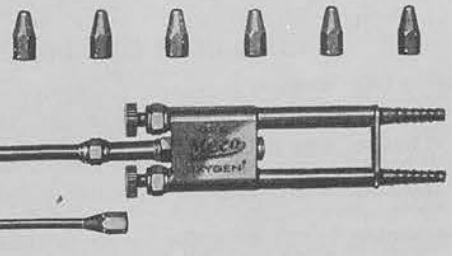
No. 1-A OXY-ACETYLENE OUTFIT

1—Type N Lead Burning Torch with tips Nos. N-2, N-3, N-4 and N-5.
1—Type J Acetylene Regulator equipped with gauge for indicating tank pressure and gauge for indicating delivery pressure.
1—Type J Oxygen Regulator equipped with gauge for indicating tank pressure and gauge for indicating delivery pressure.
2—10-foot lengths special No. 4 Tubing.

No. 1-A Oxy-Acetylene Lead Burning Outfit	**$55.00**	GABEZ

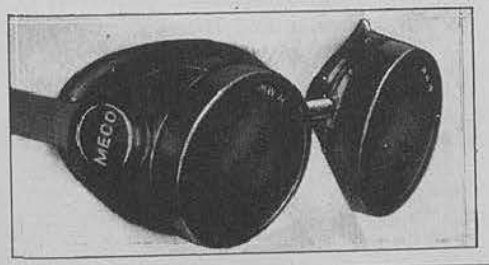
MECO LEAD BURNING OUTFITS

MECO Lead Burning outfits are designed to fulfill the need of a much felt want of high-grade lead burning equipment. Unlike most other equipment, built simply to do lead burning, MECO equipment is built along the lines of the heavier welding equipment and has a great many of its patented exclusive features incorporated in its degisn.



	Codeword	Price
Type N Lead Burning Torch, 4 tips	DUBOG	**$10.50**

MECO GOGGLES



(For Use Over Spectacles)

GOGGLES (Welding and Cutting)

No. 120—M.A. Lenses, Specify Light, Medium or Dark Lenses	per pair	$3.25

Spectacles

No. 140—M.A. Lenses, Specify lense colour	per pair	$1.85
Safety Goggles,	per pair	2.25

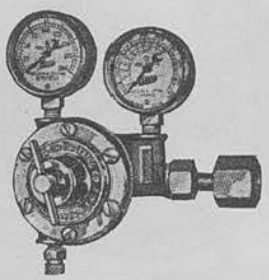
Lenses

For 120 and 140 goggle or spectacle,	per pair	$2.00
Cover Lenses for same,	per pair	.30

Be sure to specify shade required when ordering.

REGISTERED U.S. & CANADIAN Meco PATENT OFFICE

MECO REGULATORS



All Meco High Pressure Regulators are of the Multi-Seat Type—four seats instead of one. One seat is in service until worn out, thus Meco Regulators have four times normal life without replacement. This is another factor of Meco Construction which emphasizes that first costs are relatively unimportant compared to operating costs. Illustrated is the Meco Type J. Regulator, a far greater value than its price would indicate. It is an excellent regulator for all welding purposes and for light cutting.

Type J. Oxygen Welding Regulator, both gauges $21.60
Type J. Acetylene Regulator, both gauges (specify fittings) 18.00

For heavy duty cutting as well as welding, we recommend our Type G. D. Regulators with Safty-Chek Valves.

Type G. D. Oxygen Welding Regulator, both gauges $25.80
Type G. D. Acetylene Regulator, both gauges (specify fittings) 23.00

WALCO HOSE (Heavy Duty)

3/16" 3-ply acetylene, red ..... per ft. $0.19
3/16" 4-ply oxygen, green ..... per ft. 0.20

MECO HOSE CLAMPS

Meco Hose Clamps prevent expensive gas leaks at all hose connections. Simple to attach and grip firmly.

	3/8"	5/16"	1/4"	3/16"
Hose Clamps	$0.10	$0.10	$0.10	$0.10

MECO HOSE CONNECTIONS

Meco Hose Connections are made to U. S. Standards. When ordering connections specify whether for oxygen, which takes a right hand (RH) thread, or for Fuel gas which takes a left hand (LH) thread.

STANDARD HOSE CONNECTIONS—9/16" for oxygen (RH) or Fuel gas (LH)—specify also inside hose diameter, 3/16", 1/4", 5/16", 3/8", each $0.30

STANDARD HOSE NIPPLE—for connecting two lengths of hose with standard fittings. 9/16" Oxygen (RH) or Fuel gas (LH) $0.30

STANDARD OUTLET BUSHINGS—one end 1/4" taper pipe thread to fit regulator outlet, etc., other end fits standard hose connection—9/16" Oxygen (RH) or Fuel gas (LH), each $0.30

STANDARD HOSE SPLICER—for splicing two lengths of hose. Specify inside diameter hose

	3/16"	1/4"	5/16"	3/8"
each	$0.30	$0.35	$0.40	$0.45

MECO TRIPL-FLINT LIGHTER

The first really heavy duty lighter. Note the sturdy construction with strip steel frame that retains its tension. It produces a fat hot spark that will ignite under most adverse conditions. When a flint wears out just revolve a new one into position.

Meco Tripl-Flint Lighter with holder (3 flints) $0.75
Meco Tripl-Flint Holder (3 flints) ..... .30

We can supply welding equipment to suit every particular need that might arise. The facilities of our offices are at your disposal and you are invited to refer your welding problems to us.

CAST IRON RODS

For all Cast Iron Welding

Diam.		Aver. Lgth.	Prices per lb. in quantities of 1-49 lbs.	50-99 lbs.	100-499 lbs.
1/8"	square	18"	$0.34	.33	.32
3/16"	"	24"	.22	.20	.19
1/4"	"	24"	.19	.17	.16
5/16"	"	24"	.18	.16	.15
3/8"	"	24"	.17	.15	.14
1/2"	"	24"	.17	.15	.14

COPPER COATED STEEL

For all Steel Welding with exception High Carbon and Alloys

1/16"	36"	$0.20	.16	.15
3/32"	36"	.18	.14	.13
1/8"	36"	.17	.13	.12
3/16"	36"	.16	.12	.11
1/4"	36"	.16	.12	.11

NICKEL STEEL "NICKOX"

Very high tensile strength. An extremely fine rod for work that must be machined.

1/8"	36"	$0.30	.26	.24
3/16"	36"	.27	.23	.21
1/4"	36"	.25	.21	.19

HIGH CARBON STEEL

No. 110-G

Especially suited to High Carbon Steel.

1/8"	36"	$0.26	.22	.20
3/16"	36"	.25	.21	.19
1/4"	36"	.25	.21	.19

TOBIN BRONZE (Genuine)

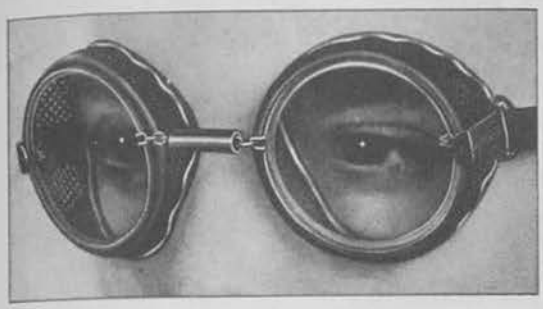
For Bronze and Brass Welding. Also Cast and Malleable Brazing.

Diam.	Aver. Lgth.	Prices per lb. in quantities of 1-9 lbs.	10-49 lbs.	50-99 lbs.
1/8"	36"	$0.57	.54	.49
3/16"	36"	.52	.48	.45
1/4"	36"	.49	.46	.42
3/8"	36"	.49	.46	.42

WELDING FLUXES

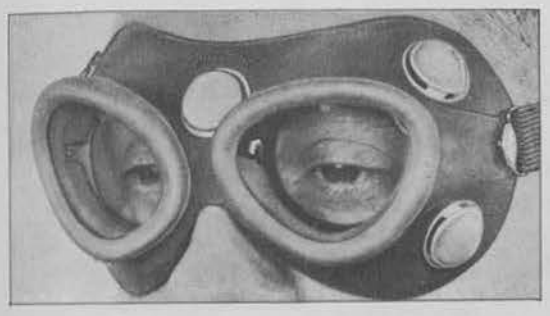
Cast Iron Brazing Flux for Bronze-welding Cast Iron	per lb.	$2.25
Cast Iron Flux	per lb.	0.60
Brazing Flux	per lb.	0.60
Welding Flux, for Brass, Copper and Malleable Iron	lb.	0.70
aluminu Flux, for both cast and sheet aluminum, paste or powder	per 1/4 lb.	0.80

WILLSON GOGGLES



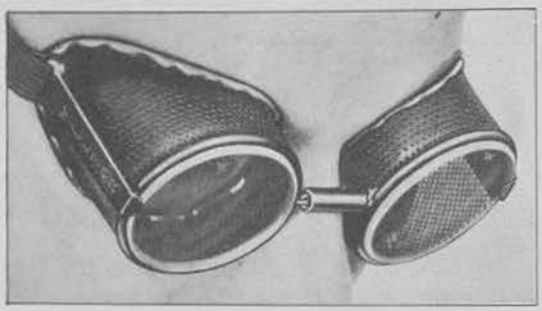
Style LJ50 ..... 50 mm. Super-Tough Lenses
Style LJ50A ..... 50 mm. Super-Tough Lenses
Style LJ31½ ..... 47.5 mm. Super-Tough Lenses
Style LJ31½A ..... 47.5 mm. Super-Tough Lenses
Style LJ33½ ..... 47.5 mm. Laminated Lenses
Metal Cups — One-Piece Adjustable Elastic Headband
Direct Ventilation — Packed in a Metal Case

Styles LJ50A and LJ31½A have cups of a special non-corrosive material known as "AMBRAC".



Style X31 ..... Drop Eye Super-Tough Lenses
Style X32 ..... Drop Eye Clear Unhardened Lenses
Style X33 ..... Drop Eye Laminated Lenses
Rubber Over-All Goggle — Two-Piece Adjustable Elastic Headbands
Indirect Ventilation — Packed in a Cardboard Box

Over-All, Style X31, is used widely by chippers, riveters, grinders and others in dangerous eye-hazardous work and is equally suitable whether or not the workman wears spectacles. The triangular shaped Super-Tough lenses (see page 15) provide a wide range of vision and protection against impact. Adequate ventilation is provided thru five ventilating ports which are screened to prevent the entrance of dust.



Style L31½ (Illustrated) ..... 47.5 mm. Super-Tough Lenses

Style L48½ ..... 47.5 mm. Super-Tough Lenses

Style L48½ has indirect ventilators in deep cups but is otherwise similar to LJ48½.

Respirators

No. 1 Dustite Respirator
With X2¾ Lintine Filter Disc
Without Exhaust Valves

No. 11 Dustite Respirator
Same as No. 1 above but with Improved Filter Disc

No. 2 Dustite Respirator
With X2¾ Lintine Filter Disc
With Exhaust Valves

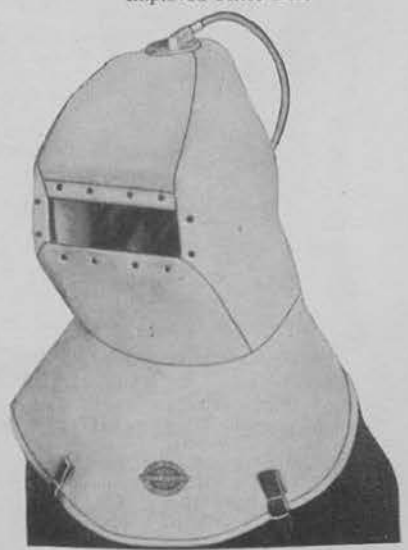
No. 22 Dustite Respirator
Same as No. 2 above but with Improved Filter Disc

ASBESTOS HEAT MASK

No. 398—Asbestos Heat Mask

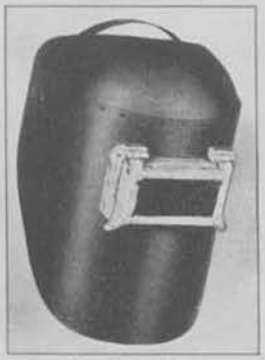
Made of asbestos for maximum heat resistance. Protects the head, face and neck as well as the eyes against flames, splashes and molten metal aad sparks. Extensively used by forgers, furnace men and heat treaters.

No. 380 Sprayblast Helmet is made of Chrome Leather with air line attachment. The glass is easily replaced and screen can be inserted in front.



Sandblast Helmet

FABRICATED WELDING HELMETS



No. 20 Helmet

No. 20
Composition Flip Front
Fabricated Shell
No. 2 Headgear
Adjustable Chin Rest
2" x 4¼" Willson-Weld Glass
2" x 4¼" Clear Cover Glass
2" x 4¼" Clear Heavy Unhardened Glass
Packed in Corrugated Carton

No. 130
Fabricated Shell
Metal Glass Holder
No. 1 Headgear
Adjustable Chin Rest
2" x 4¼" Willson-Weld Glass
2" x 4¼" Clear Cover Glass
Packed in Corrugated Carton

No. 130 Helmet

WELDING HANDSHIELDS with Willson-Weld Glass

No. 8 Handshield
with METAL glass holder

No. 6 Handshield
with COMPOSITION glass holder

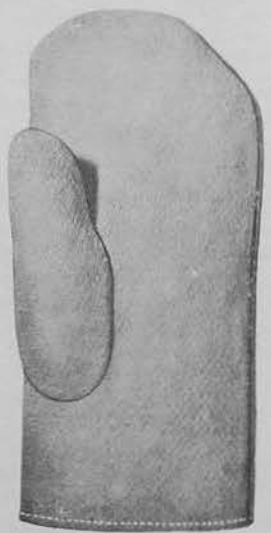
These handshields are newly designed. The shells are constructed of durable black fibre formed in ONE PIECE eliminating all seams and rivets. The handles are corrugated affording an easy grip, and the weight of the shield is so distributed that an unusually even balance is maintained. Fitted with:

2"x4¼" Willson-Weld glass
2"x4¼" Clear cover glass
2"x4¼" Fibre gasket
Packed in cardboard carton

Asbestos Gloves

No. 200
ASBESTOS GLOVE

This glove proves that an asbestos glove can be roomy, comfortable and form fitting without sacrificing heat resisting and wearing qualities.



No. 250
ASBESTOS MITTEN

A short asbestos mitten of rugged construction made of good quality asbestos. Can be supplied with lining or leather reinforcement.

No. 230
REINFORCED

Asbestos Gloves are unequalled in heat resisting and wearing qualities; roomy, comfortable and form fitting.

3/16" BALL BEARING DRILL

A production tool. For all types of cabinet work, trim work on automobile bodies, radio and airplane assembly. Small diameter and rounded exterior makes it easy to handle. Can also be furnished with side handle. Bonnet Grip with switch in end cap, or with Paddle switch.

Capacity in steel .... up to 3/16"
in hard wood .... up to 5/16"
No-load speed .... 3000 R.P.M.
Net weight .... 3¾ lbs.
Price—Paddle Switch unit **$57.00**
Price—All others **53.00**

"SHORTY" BALL BEARING DRILL

"Shorty" has been designed for "close corner" work. Can be furnished with Paddle-Switch which automatically starts drill when it is picked up. Available in 3/16" and ¼" capacities.

	3/16	¼
No load speed	3700	2500
Net weight	3½	3½
Price*	**$50.00**	**$46.00**

*Paddle Switch $4.00 extra

¼" HEAVY DUTY DRILL

This drill is recommended for continuous production service up to its rated capacity in wood or steel.

Ideal for driving carbon cleaning brushes, valve guide cleaners and Drill-Centric valve seat stones.

Armature shaft and spindle are mounted on ball bearings to carry the radial load and end thrust imposed by the different applications for which this tool is designed.

Capacity in steel .... up to ¼"
in hard wood .... up to 9/16"
No-load speed .... 2000 R.P.M.
Net Weight .... 7¾ lbs.
Price **$56.00**

¼" SPECIAL DRILL

Designed for general maintenance and light manufacturing applications. Ball bearings on armature shaft.

Light weight, comfortable grip, complete absence of sharp corners, and handy trigger switch.

Capacity in steel .... up to ¼"
in hard wood .... up to ½"
No-load speed .... 2000 R.P.M.
Net weight .... 5½ lbs.
Price **$42.00**

¼" LOW SPEED DRILL

Designed for drilling in stainless steel, Monel metal, slate, etc. Ideal wherever a slow speed drill is needed.

Capacity in steel .... up to ¼"
in hard wood .... up to ½"
Net weight .... 6¼ lbs.
No-load speed .... 450 R.P.M.
Price **$52.00**

¼" JUNIOR DRILL

$26.00

Compo oilless Bearings, Jacobs Geared Chuck, aluminum Housings and thumb control Switch.

Capacity in steel .... up to ¼"
No load speed .... 1800 R.P.M.
Net weight .... 4½ lbs.

5/16" BALL BEARING DRILL

Appearance similar to ¼" H.D. drill. Light weight combined with unusual power makes this an ideal tool for highly specialized production and general manufacturing work. Equally suited for drilling in metal or wood to rated capacity.

Ball bearings mounted on armature shaft. Alloy steel gears scientifically heat-treated for hardness and toughness run in grease-tight compartment.

Capacity in steel .... up to 5/16"
in hard wood .... up to ⅝"
No-load speed .... 1400 R.P.M.
Net weight .... 7¾ lbs.
Price **$62.00**

⅜" STANDARD DRILL

A tool for those industrial plants where highly specialized operations call for the drilling of large numbers of ⅜" holes, and where the speed of larger drills would be too slow for economical handling of such an operation.

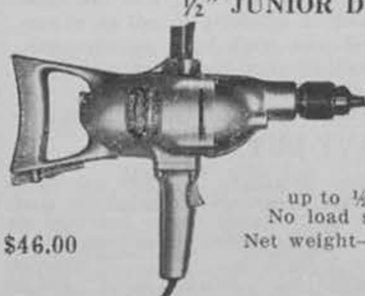
Capacity in steel .... up to ⅜"
in hard wood .... up to ¾"
No-load speed .... 900-R.P.M.
Net weight .... 12¾ lbs.
Price **$69.00**

⅜" UTILITY DRILL

A new high speed drill for production service on sheet metal work, body and cabinet assembly, rail car and shop work. Designed for the user who requires an end-handle tool of ⅜" capacity.

Capacity in steel .... up to ⅜"
in hard wood .... up to ⅝"
No-load speed .... 900 R.P.M.
Net weight .... 8 lbs.
Price **$65.00**

½" JUNIOR DRILL



Similar in construction to the ¼" Junior model. Ideal for driving Hole Saws.

Capacity in steel up to ½"
No load speed—375 R.P.M.
Net weight—10½ lbs.

$46.00

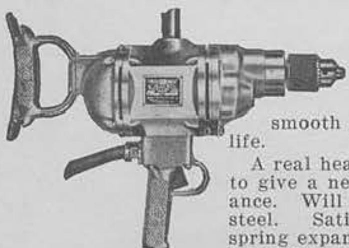
½″ SPECIAL DRILL

A completely redesigned unit embodying all of the best features of previous units plus many new ones.

Larger motor, with armature shaft running on ball bearings makes this drill the most powerful ½″ Special ever built by Black & Decker. Power to spare for any drilling application up to rated capacity.

Capacity in steel ....up to ½″
in hard wood........................up to 1″
No-load speed ....400 R.P.M.
Net weight ....13¼ lbs.
Price **$69.00**

½″ HEAVY DUTY DRILL



Ball bearings on armature shaft, intermediate gear shafts, and spindle. 100% use of ball bearings assures smooth performance and long life.

A real heavy duty drill designed to give a new version of performance. Will bite through heaviest steel. Satisfactory for driving spring expanded cylinder hones on intermittent service.

Capacity in steel ....up to ½″
in hard wood........................up to 1″
No-load speed ....500 R.P.M.
Net weight ....16½ lbs.
Price **$88.00**

⅝″ HEAVY DUTY DRILL

This drill, with full anti-friction bearing construction, is intended for continuous production work up to rated capacity. Also suitable for cylinder honing. Ball bearings on armature shaft and intermediate gear shafts. Roller bearings on spindle to take care of radial load and end thrust. Ample ventilation.

Capacity in steel........................5/32″ to ⅝″
in hard wood........................up to 1¼″
No-load speed ....450 R.P.M.
Net Weight ....22½ lbs.
Price **$108.00**

¾″ HEAVY DUTY DRILL

Building contractors, heavy machinery plants, car and locomotive maintenance shops, automotive shops, etc., will recognize the economy in selecting a tool as powerful and well built as this one. Anti-friction bearing construction throughout.

Price **$122.00**

⅞″ HEAVY DUTY DRILL

Full anti-friction bearings assure long life and satisfactory performance. Ball bearings on armature shaft and intermediate gears with taper roller bearings on spindle. Equipped with No. 3 Morse Taper Socket.

Price (with external socket)........................ **$130.00**
Price (with internal socket) **138.00**

1″ HEAVY DUTY DRILL

A real tool for heavy duty drilling up to 1″. Also suitable for light reaming up to ¾″ Full anti-friction bearing construction. Equipped with No. 3 Morse Taper Socket for taper shank drill bits.

Capacity in steel ....41/64″ to 1″
in hard wood ....up to 2¼″
light reaming ....up to ¾″
No-load speed ....350 R.P.M.
Net Weight ....27¾ lbs.
Price (with internal spindle) **$150.00**
Price (with external spindle) **145.00**

No. 8 HEAVY DUTY DRILL

A real heavy duty tool for 1½″ drilling in steel. wood boring up to 4″, and light reaming in steel plate up to 1⅛″. Full anti-friction bearing construction. Equipped with No. 4 Morse Taper Socket.

Capacity in steel ....1 1/64″ to 1½″
in hard wood ....up to 4″
in coal ....up to 2″
light reaming ....up to 1⅛″
No-load speed ....350 R.P.M.
Net weight ....66 lbs.
Price **$325.00**

HOLE SAWS

Hole Saws increase the range of a ½″ Electric Drill to 3½″. For cutting clean, round holes in any material that a hacksaw will cut.

Finest quality tungsten steel carefully hardened for durability. Mandrel holds a ¼″ twist drill which drills the pilot hole and serves as a guide for the saw. Holes up to ⅞″ deep may be cut.

Saw Size	Coarse Saw No.	Fine Saw No.	Price (Saw only)
¾″	14906	16882	**$0.85**
⅞″	14908	16883	**.85**
1 ″	14910	16884	**.85**
1⅛″	14912	16885	**1.10**
1-3/16″	17679	17678	**1.10**
1¼″	14911	16886	**1.10**
1⅜″	14913	16887	**1.10**
1½″	14914	16888	**1.10**
1⅝″	14915	16889	**1.30**
1¾″	14916	16890	**1.30**
1⅞″	14917	16891	**1.30**
2 ″	14918	16892	**1.55**
2-1/16″	14919	16893	**1.55**
2⅛″	14920	16894	**1.55**
2¼″	14922	16895	**1.80**
2⅜″	14921	16896	**1.80**
2½″	14923	16897	**1.80**
2⅝″	14924	16898	**1.95**
2¾″	14925	16899	**1.95**
2⅞″	14927	16900	**1.95**
3 ″	14926	16901	**2.15**
3⅛″	14930	16902	**2.15**
3¼″	14929	16903	**2.15**
3½″	14928	16904	**2.15**

14903 Mandrel (for ¾″ to 1⅛″ saws)........ **2.15**
14904 Mandrel (for 1-3/16″ to 2″ saws)....... **2.15**
18028 Mandrel (for 2-1/16″ to 4″ saws)....... **3.30**

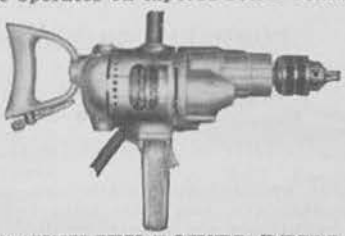
UTILITY POWER DRILLS

The Utility Power Line of Drills is priced to give the greatest value in drill history.

Designed for the shop that wants "production unit" power and "service tool" utility.

Power enough for any drilling job with a spindle speed adapting it to drilling with carbon bits, driving wood augers, cutting with hole saws, driving cylinder hones, etc.

Triple gear reduction. Motor mounted on ball bearings. Spindle operates on tapered roller bearings.



5/8" UTILITY POWER DRILL

Capacity in steel	5/32" to 5/8"
Capacity in hard wood	1 1/4"
No-load speed	300 R.P.M.
Net weight	17 lbs.
Chuck Equipment	5/8" with key
Price	$79.00

3/4" UTILITY POWER DRILL

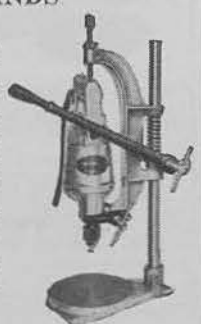
Capacity in steel	3/16" to 3/4"
in hard wood	1 1/2"
No-load speed	250 R.P.M.
Net weight	19 1/4 lbs.
Chuck equipment	3/4" with key
Price	$90.00

7/8" UTILITY POWER DRILL

Capacity in steel	41/64" to 7/8"
in hard wood	1 3/4"
No-load speed	200 R.P.M.
Net weight	17 3/4 lbs.
Chuck equipment	No. 3 Morse Taper Socket
Price	$98.00

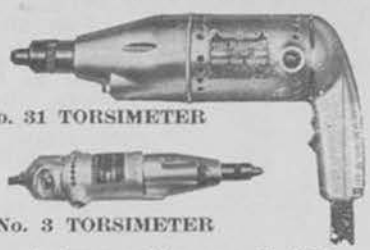
BENCH DRILL STANDS

The full flexibility of Black & Decker Electric Drills is made available with a Bench Post or Pedestal Drill Stand. The portable unit is quickly converted into a drill press for heavy duty, precision work. The handle leverage enables operator to exert tremendous pressure on the work. The tool bracket can be raised or lowered on the supporting column, and swung in an arc to any desired position.



No. 20	Bench Stand (for all current end-handle drills)	$19.00
No. 40	Bench Stand (for 3/8" Std., 1/2" Junior and Special Drills	29.00
No. 60	Bench Stand (for all current side-handle drills)	43.00
No. 60	Post Stand	48.00
No. 60	Pedestal Stand	48.00

TORSIMETER



No. 31 TORSIMETER

No. 3 TORSIMETER

The Torsimeter contains an adjustable as well as a positive clutch. When adjustable clutch is set for the desired tension all screws are then driven to a uniform tightness. Positive clutch does not engage until pressure is exerted on tool.

No. 3 Torsimeter—	
Net weight	2 3/4 lbs.
No-load speed	1000 R.P.M.
Price—with bonnet grip	$68.00
with paddle switch	72.00
No. 31 Torsimeter—	
Net weight	5 lbs.
No-load speed	750 R.P.M.
Price—with bonnet grip	$74.00
(End handle or side handle optional no extra charge)	
with paddle switch	78.00

No. 12 and No. 22 SCREWDRIVERS

The No. 12 machine will drive a No. 12 wood screw, 2" long in hardwood. The No. 22 machine will drive wood screws up to No. 16 by 3 1/4" long. These capacities are predicated on the use of proper size lead holes. Both tools equipped with positive clutches.

	No. 12	No. 22
Nut running capacity	up to 1/4" dia.	up to 5/16" dia.
No-load speed	500 R.P.M.	500 R.P.M.
Net weight	6 3/4 lbs.	9 lbs.
Reversing switch, extra	$13.00	$13.00
Price	$74.00	$94.00

No. 32 and No. 42 NUT RUNNERS

Both tools equipped with positive type clutch. When equipped with reversing switch either tool is ideal for assembling and disassembling units that are shipped "knocked down."

	No. 32	No. 42
Capacity: Wood screws	No. 20 by 4"	
Lag Screws	3/8" x 4 1/2"	1/2" x 5 1/2"
Nut and bolts up to	1/2" dia.	up to 7/8" dia.
No-load speed	500 R.P.M.	500 R.P.M.
Net weight	22 1/2 lbs.	31 lbs.
Reversing switch, extra	$19.50	$19.50
Price	$125.00	$158.00

No. 43 NUT RUNNERS

Introduced to take care of applications requiring a low-speed tool with high torque. Capacity up to 3/4" x 6" long lag screw; Nuts and bolts up to 1" dia.

No-load speed	90 R.P.M.
Price	$172.00

RIGHT ANGLE ADJUSTABLE SCREWDRIVERS and NUT RUNNERS

For assembly operations in hard-to-reach places, we are able to offer a complete line of Screwdrivers and Nut Runners with Right Angle Heads. Specifications and prices will be supplied on request.

PORTABLE ELECTRIC TAPPER

Taps thread in steel, cast iron, brass or aluminum about eight times as fast as by hand methods. Reduces tap breakage. Reverses automatically when operator gives backward pull on machine.

Capacity in cast iron, ⅜" tap; in steel, ¼"; in brass or aluminum, ½".

No-load speed	300 R.P.M.
Net weight	9½ lbs.
Price	**$112.00**

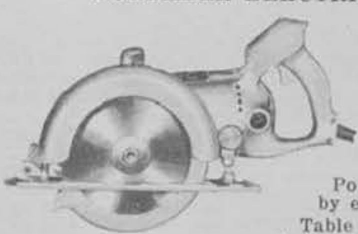
PORTABLE ELECTRIC HAMMERS

These Hammers have been completely redesigned and operate on an entirely new principle. The hammer action is developed in a piston-in-cylinder assembly—the piston is driven by a crank through a connecting rod with a spring and air cushion absorbing the recoil. This action gives a definite "follow-through" stroke producing a high ~~ration~~ of efficiency.

	No. 30	No. 32	No. 34
Capacity (drilling)	½"	¾"	1⅛"
No. blows per minute	2700	2500	2300
Net weight	5¾	8½	16½
Overall length	12⅞"	14⅜"	16¾"
Price	**$112**	**$150**	**$190**

The above Hammers have "Universal" motors that will operate on A.C. or D.C. No transformers or rectifiers required.

PORTABLE ELECTRIC SAWS



These Portable Electric Saws offer many design and construction features such as complete safety, perfect balance, less weight and increased power. Power is transmitted by efficient worm gears.

Table is adjustable for depth of cut and can be tilted for bevel cutting at any angle to 45°.

	No. 35	7"	10"
Dia. Blade	5¼"	7"	10"
Max. Depth Cut	1⅜	2⅜	3½
Speed	4200	3200	2000
Net Weight	11¼	17¼	33¾
Price	**$98**	**$138**	**$235**

PORTABLE LECTRO SHEAR

For cutting sheet steel, galvanized iron, copper, tin, aluminum, lead, fibre, etc.

Shearing action based on same principle used in large machine power shears.

Blades fully adjustable by means of set-screws. Special fixtures not necessary for sharpening blades. Cutting radius ¾".

	No. 18	No. 16
Capacity in steel	18 gauge	16 gauge
Price	**$79**	**$99**

DIE GRINDERS

Two precision built Die Grinders for tool rooms, die shops, etc. High Speed direct drive from Universal Motors. Standard equipment includes ¼" single purpose chuck.

	No. 7	No. 12
Max. Wheel Size	2 x ½	2½ x ½
No-load Speed	19000	19000
Net Weight	2½	4
Price	**$46**	**$50**

PORTABLE GRINDERS

These new grinders include the most advanced principles of portable grinder design. Increased power, full sized ball bearings, enclosed commutator compartment as protection against grit and dirt, improved balance, and increased ventilation are features of these tools. Powerful universal motors operate on either A.C. or D.C.

Unit	No Load Speed	Wgt.	Price
2" Grinder	19000	3½	**$ 52**
2½ Grinder	19000	4½	**$ 59**
4" Grinder	4500	12½	**$ 82**
5" Grinder	3800	15½	**$105**
6" Grinder	3300	23½	**$132**
8" Grinder	4000	25½	**$158**

7" JUNIOR SANDER

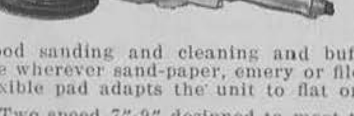
$51.00

For odd job, light duty, intermittent metal finishing.

No load speed	3200 R.P.M.
Net weight	7¾ lbs.
Overall length	14¾"

Supplied with 3-Conductor Cable, Moulded Rubber Flexible Pad and 3 sample Sanding Discs.

PORTABLE ELECTRIC SANDERS



Portable Electric Sanders greatly reduce operating time and produce superior work in all types of metal finishing, wood sanding and cleaning and buffing. Suitable for use wherever sand-paper, emery or file can be used. The flexible pad adapts the unit to flat or curved surfaces.

Two speed 7"-9" designed to meet the needs of a shop using both 7" and 9" discs, but not having work to justify two sanders.

Two speed Sander—Polisher is for the shop requiring a Sander but where it is desired to do polishing occasionally.

Unit	Speed	Weight	Price
7" Junior	3200	7¾	**$ 51.00**
7" Special	4200	12½	**$ 70.00**
7" Heavy Duty	4200	15¼	**$100.00**
9" Standard	2700	15¼	**$104.00**
Combination Sander-Polisher	4200 or 1300	14¾	**$ 88.00**
Combination 7"-9" Sander	4200 or 2700	14¾	**$102.00**
No. 80 Surfacer	4200	21¼	**$139.00**

PORTABLE ELECTRIC POLISHERS

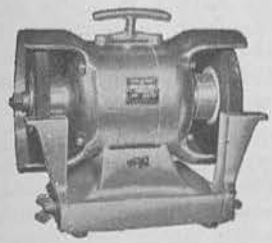
AUTOMATIC POLISHER $86.00

Polish is fed to the work as desired by pressing the plunger of the pump in the reservoir, which feeds the polish through the center of the Lambswool Pad.

STANDARD POLISHER **$68.00**

Does the same high-grade work as the Automatic unit, but is somewhat slower as the polish has to be applied by hand.

6" JUNIOR BENCH GRINDER



A Ball Bearing Bench Grinder with ¼ H.P. motor (rating for 60 Cycle current). Housings and Guards die cast alloy, combining high strength with light weight. The low price makes it possible to spot them around the shop.

Price 50-60 Cycle, A.C. **$27.50**

Price 25-40 Cycle, A.C. **29.95**

6" H.D. BALL BEARING BENCH GRINDER

$53.00

This Grinder offers in a 6" unit the extended endbell construction usually found only in larger, more expensive Grinders. Wheel size 6" x ¾" x ½". Supplied for 50—60 Cycle, Single Phase, A.C. only. 1/3 H.P. motor. 3600 R.P.M.

8" BALL BEARING BENCH GRINDER

A Ball Bearing Grinder with extended endbells and ½ H.P. motor (rating is for 60 cycle). Wheel size 8" dia. x ⅞" face x ⅝" hole. Can be supplied for any Single Phase, A.C. voltage up to and including 250 Volts.

Price **$94.00**

8" COMBINATION GRINDER

Same specifications as above, excepting one special wide Guard and 8" Wire Wheel Brush is substituted for one of the Grinding Wheels and Guard. Price . **$99.00**

10" BALL BEARING GRINDER

Guards completely enclosed and equipped with exhaust outlets. Guards adjustable for grinding in any position on circumference of wheel. Tool Rests and Spark Shields adjustable to wheel wear. Motor rating for 60 Cycle is 1 H.P. and is ball bearing mounted. Wheel size 10" x 1" face x ¾" hole.

Price **$137.00**

10" COMBINATION GRINDER

Similar in construction to the 10" Grinder, but has one wide Guard and one 10" Wire Wheel Brush.

Price **$142.00**

WIRE WHEEL BRUSHES

	Diam.	Width	Price
No. 704	4"	1¼"	**$1.85**
No. 706	6"	1½"	**3.10**
No. 707	7"	1½"	**4.05**
No. 708	8"	1½"	**4.25**
No. 710	10"	2"	**7.35**
No. 712	12"	2"	**9.75**

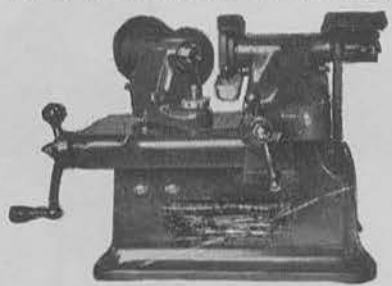
Note—Specify arbor hole size when ordering. 4" Wire Wheel brush furnished with ½" as standard. Also available for ⅜".

VACKAR

A super-powered Vacuum Cleaner especially designed for rapid, efficient cleaning of car upholstery. Also suitable for removing excess moisture from upholstery after cleaning with soap and water or Lectro Kleen solution. Contains a universal motor which drives a 3-stage Centrifugal Fan which will move 35 cubic feet of air per minute—vacuum pull 40". Swivel hose connection prevents kinking.

Price **$98.00**

SUPER SERVICE WET VALVE REFACER



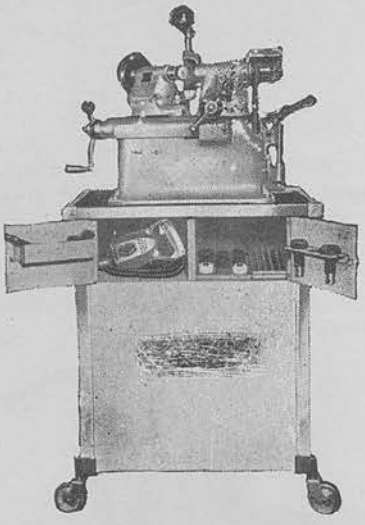
A Super-Service Wet Grinding Refacer increases speed of grinding, and produces a smooth, mirror-like finish. Features include SUPER-POWER with two universal motors; SUPER-SPEED FEED SCREWS; SUPER-SENSITIVE SLIDES with 3-point bearing suspension. Twin-grip collet type chuck.

1/16" Wet Refacer (9/32-9/16") **$215.00**
⅝" Wet Refacer (9/32-11/16") **229.00**

For those shops not requiring the speed of a Wet Grinder, we offer the Standard Super-Service Grinder. Same features as above but without wet grinding attachment.

1/16" Refacer (9/32-9/16") **$195.00**
⅝" Refacer (9/32-11/16") **209.00**

ELECTRIC VALVE SHOP



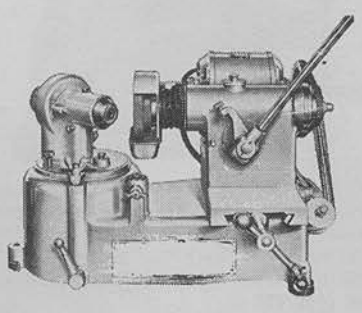
A complete Valve-Shop on wheels that can be rolled up to the job with the equipment necessary to reface valves and recondition valve seats whether these be of the cast iron or "stellite" insert variety.

The Electric Valve Shop is complete:—

1 Valve Refacer	1 Portable Cabinet.
1 Vibro Driving Outfit.	1 Dressing Stand.
2 Stone Sleeves.	5 Self Centering Pilots.
3 Hard Seat Stones.	7 Soft Seat Stones.
3 Valve Guide Cleaners.	2 Carbon Brushes.

Price—with $\frac{9}{16}$" Wet Refacer **$410.00**
with $\frac{5}{8}$" Wet Refacer **424.00**
with $\frac{9}{16}$" Super Service Refacer..... **390.00**
with $\frac{5}{8}$" Super Service Refacer..... **404.00**
with $\frac{9}{16}$" Special Refacer..... **358.00**
with $\frac{5}{8}$" Special Refacer..... **372.00**

SPECIAL VALVE REFACER

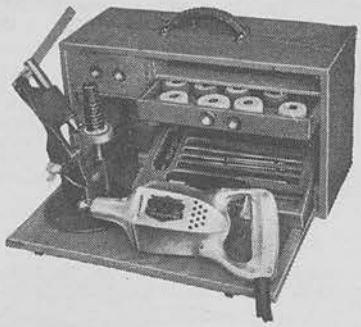


A Precision Valve Refacer for the shop desiring a Quality Machine at a low price.

Triple ball bearing wheel spindle. Adjustable work head. Twin-grip collet type chuck. Heavy duty constant speed motor.

$\frac{9}{16}$" Special Refacer (9/32-9/16")..... **$158.00**
$\frac{5}{8}$" Special Refacer (9/32-11/16")..... **172.00**

VIBRO-CENTRIC VALVE SEAT GRINDER



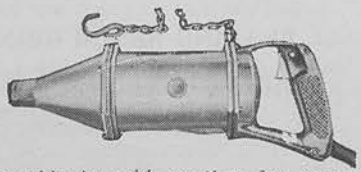
The Vibro-Centric principle of valve seat reconditioning has been definitely accepted by the trade, and it has proven to be the outstanding method for valve seat reconditioning where speed, accuracy and simplicity of operation are factors. Vibro-Centric is the **universal** valve seat grinder working with equal efficiency on cast iron, hard steel or stellite valve seat inserts.

The high speed of the driver (12,000 R.P.M.) combined with a patented vibrating action makes it possible to recondition all types of valve seats easily and quickly to an accuracy of .001" or better. The vibrating action retards loading of stones which means less frequent dressing. And when necessary stones are dressed to any desired angle from 0° to 45° in a few seconds with the Stone Dressing Stand.

The Universal Vibro-Centric Kit contains the necessary assortment to take care of the majority of passenger cars built since 1930. Kit contains Driving unit, Stone Dressing Stand, 2 Stone Sleeves, 5 Self-Centering Pilots, 10 Stones, and Oak carrying case.

Universal Vibro-Centric Kit..... **$135.00**

PORTABLE ELECTRIC HEAT GUN



Indispensable in cold weather for properly draining motor oil pans, differentials and transmissions. Also useful for thawing out radiators, water pumps, and for drying carburetors, brake bands, etc. Developes instantaneous concentrated heat combined with a positive blowing action.

Three-stage fan forces 8 cu. ft. of air per minute over the 1000 watt heating element which raises the temperature from 70° to 425° F.

Furnished complete with six attachments suitable for various applications.

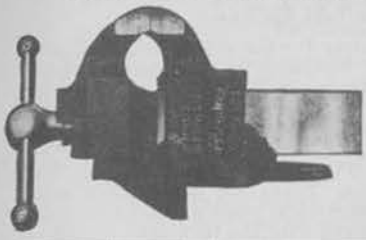
Price **$44.50**

BLACK and DECKER ELECTRIC TOOLS

"Helping good Mechanics do better work."

We carry a complete stock of Electric Drills and Grinders, and service parts, and have factory trained men at your service. Ask for a demonstration.

Parker's Eclipse Machinists' Vises



Stationary Jaw Stationary Base

Parkco metal castings. Renewable, milled and fitted tool steel faces. Extra size, strong cut-screw and nut. Saddle and saddle screw.

New No.	Old No.	Jaw In.	List Price	Weight Lbs.	Vise Opens
952½	101	2½	$ 9.00	15	3½
953	102	3	10.00	23	4½
953½	103	3½	11.25	35	5½
954	104	4	12.75	46	6½
954½	105	4½	15.50	63	7
955	106	5	20.00	85	8
955½	106½	5½	30.00	110	9
956	107	6	39.00	132	10½
958	108	8	75.00	245	13¾

Parker's Eclipse Machinists' Vises

Stationary Jaw Swivel Base

Parkco metal castings. Swivel base gives 360° gripping power. Renewable, milled and fitted tool steel faces. Extra size, strong cut-screw and nut. Saddle and saddle screw.

New No.	Old No.	Jaw In.	List Price	Weight Lbs.	Vise Opens
972½	201	2½	$12.00	17	3½
973	202	3	13.00	26	4½
973½	203	3½	15.00	42	5½
974	204	4	17.00	59	6½
974½	205	4½	20.00	76	7
975	206	5	30.00	104	8
975½	206½	5½	38.00	130	9
976	207	6	52.00	157	10½
978	208	8	98.00	298	13¾

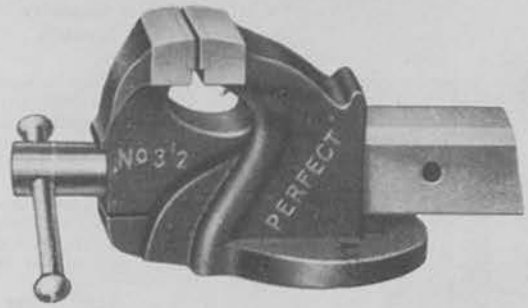
Parker's Double Swivel Vises

Swivel Base

The swivels operate independent of each other, allowing the work to be placed in any position without removing same from the jaws.

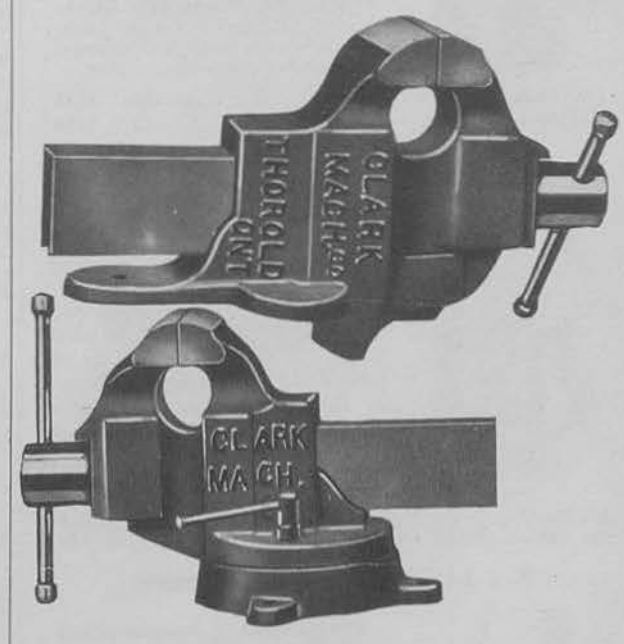
New No.	Old No.	Jaw In.	List Price	Weight Lbs.	Vise Opens
473½	429	3½	$27.00	53	3½
474	439	4	32.00	67	6
474½	449	4½	39.00	87	7½

Clark Perfect Garage Vise



These Vises are perfect in every way. The Frame is well-proportioned, well-machined, and carefully fitted. Castings are of semi-steel. Nuts are of best material procurable for the purpose, and will not wear out. Jaws are of hardened cast steel. Screws are of best screw stock, acme thread. All parts are interchangeable.

No. 3	3" Jaw, 13 lbs.	$4.80
	With Swivel,	8.00
No. 3½	3½" Jaw, 25 lbs.	7.00
	With Swivel	11.00
No. 4	4" Jaw, 35 lbs.	9.50
	With Swivel	14.00
No. 4½	4½" Jaw, 45 lbs.	11.50
	With Swivel	16.50



Clark Bench Vises

They are accurate, solid construction of Semi-steel casting, Gun-metal Nuts, Tempered Steel Jaws:

No. 3	Semi-Steel Vise, 3" Jaw, 18 lbs.	$ 9.50
No. 4	Semi-Steel Vise, 4" Jaw, 45 lbs.	12.75
	With Swivel, 56 lbs.	17.50
No. 4½	Semi-Steel Vise, 4½" Jaw, 55 lbs.	15.50
	With Swivel, 68 lbs.	21.00
No. 5	Semi-Steel Vise, 5" Jaw, 80 lbs.	20.00
	With Swivel, 100 lbs.	30.00
No. 6	Semi-Steel Vise, 6" Jaw, 150 lbs.	44.00
	With Swivel, 175 lbs.	56.00

C & L Blow Torches

No. 32A, 1-Quart Capacity
No. 238, 1-Pint Capacity
For Gasoline

Performs perfectly either indoors or outdoors under severe weather conditions. Powerful burner of improved construction is fitted with wind shield and has self-cleaning non-enlargeable gas orifice.

The quart size burner produces an intensely hot blue blast 7 inches long which may be regulated for lighter work. Pint size burner is smaller.

No.	32A	238
Each	$18.00	17.00
Capacity	1 Qt.	1 Pt
Ship. Wt. ...lbs.	5	4¼

No. 158-A C. & L. Blow Torches

Produces a good sized flame. Operates outdoors perfectly. Economical in fuel consumption. Long burning life.

Burner of extra high grade bronze. Sharp point self-cleaning needle provided with large shoulder to prevent orifice enlargement. Burner protected by windshield. Control valve handle of heat resisting composition. Tank of brass. Red handle grip. Quick-acting "T" handle pump. Lock-down feature holds pump plunger down after pumping pressure.

No. **158-A.** Capacity 1 Quart ....Each **11.12**
No. **160-A.** Capacity 1 Pint ....Each **10.50**

C & L Handy House Torches

A special designed torch for house use. For Gasoline.

Tank is drawn from heavy gage brass with flanged base and funnel shaped bottom rolled in and soldered, finished with a special bronze lacquer. Burner made of bronze, fitted with removable burner hook. Automatic pump with double check valve. Torch is filled from the bottom which is fitted with brass strainer plug.

No. **700A** Capacity 1 pint......................Each **9.00**
No. **600A** Capacity 1 quart.....................Each **9.00**

No. 144A C&L Blow Torches

For gasoline. A medium priced torch for mechanics, producing a medium flame and made for average work. Burner has self-cleaning, non-enlargeable, renewable gas orifice and renewable jet cleaner pin. Windshield protects flame.

Polished brass tank with lock down T handle pump and bottom filler plug.

Shipping weight, 4¾ pounds.

No. **144A** Blow Torch, 1-Quart Capacity ....Each **15.00**

No. 252 C & L Gasoline Torches

The Tool Kit Torch

Handy for the repairmen because of their compactness and convenience in carrying; also they are great favorites for use in corners and close places. These torches are equipped with flat tanks—2 inches thick, 5 inches long, and 9½ inches high complete with burner. Tanks are drawn from seamless cartridge brass and all fittings interlocked with the tank shell. They are of the very best design—non-enlargeable gas orifice—and made of highest grade materials. Produces a large volume flame.

Capacity, one pint. Shipping weight, 4½ pounds.

No. **252** Gasoline Torches...............Each **15.55**

No. 308 C & L Gasoline Torches

Operates efficiently either indoors or outdoors under severest weather conditions. To insure quick starting, the burner is equipped with a patented preheater which directs an intense preheating blast (1800 degrees) against the vaporizing veins of the back burner. Windshield provides positive protection in cold, windy weather. Non-enlargeable and self-cleaning gas jets. Capacity, 1 quart. Weight, 5⅛ pounds.

Each **23.35**

No. 225 C & L Blow Torches

2-Quart Capacity
For Gasoline

Used by service stations and garage repair men, railroad shops, marine use, etc.

Multi-Flame burner; produces a 10-inch flame which may be closely regulated to small size, improved internal vein construction, cleaner tip on control needle.

Supplied with large size pump. Kerosene can be burned by changing the orifice block which will be furnished at no extra cost if specified. Ship. wt., 7 lbs.

No. **225**........each **$30.00**

No. 325 C & L Multi-Flame Torches

1-Quart Capacity
For Gasoline

The No. 325 Heavy Duty Torch has an extra powerful burner that produces a strong blue blast flame of remarkable volume and great heat intensity. Full flame control for heavy or light work. It will burn in any position.

Although this torch is regularly supplied for burning gasoline, by changing the burner jet, kerosene can be burned successfully.

Shipping weight, 5¾ pounds.

No. **325**..........each **$21.90**

No. 91 C & L Single Needle Fire Pots

For Gasoline

The burner has great generating power and burns either high or low test gasoline. A swivel permits turning the burner up or down. The top section is of steel and can be quickly removed by loosening a set screw, and base with burner used as an open fire.

The heavy gauge drawn steel tank is tinned inside and out, which prevents rust. It is strongly reinforced and fitted at base with patented cushion band. Heats a pair of 12-pound soldering coppers and pot of lead at same time.

No. 91
Shipping Weight....pounds 14¾
Price.................each **$33.00**

C & L Coil Fire Pots

For gasoline. It will withstand more hard service, produce a hotter fire, using less fuel than any other coil fire pot. Tank is drawn steel tinned. Patented quick detachable coil unit and hinged door coil cup.

Price, No. **22A.** Capacity, 1 gal..................Each **25.00**

Price, No. **12A.** Capacity, 1 gal. Exactly the same as No. 22A except it is fitted with air valve and bulb ....Each **24.80**

C & L Heavy Duty Fire Pots

Produces an extra large, powerful blast flame which may be closely regulated by the flame control device. Quickly melts 75 pounds of solder. For gasoline or kerosene. Top shield 10 inches diameter.

Capacity, one gallon.

No. **75**................Each **50.00**

No. **76**, same as No. 75, except the shield is made with side opening to accommodate soldering coppers and the top is fitted with wax kettle brackets and detachable cover ....Each **50.00**

No. **77**, same as No. 75, except with 8-inch shield.........Each **45.00**

No. 180 C. & L. Quick-Generating Fire Pot

For sheet metal workers, etc. Noiseless, smokeless and odorless. One gallon gasoline lasts 6 hours. Windproof.

Will heat a pair 12-pound coppers and melt a pot of metal at the same time. Upper valve controls the fire. Lower valve is used for quick generating.

Seamless leak-proof tanks drawn from heavy gage steel, thickly coated with tin. Powerful heavy-duty pump produces air compression quickly.

No. 180 Fire Pot....Each **35.55**

Hargrave Superclamps

No. 40 Heavy Service

Frame is forged from an extremely stiff steel and heat-treated.

Screw is hardened steel with N.S.C. thread and square head.

Opening, Ins. Max.	Opening, Ins. Min.	Depth, Ins.	Each	Opening, Ins. Max.	Opening, Ins. Min.	Depth, Ins.	Each
¾	0	11/16	**1.15**	3¼	1⅜	2¾	**5.60**
1¼	0	1⅛	**1.75**	4½	2	2¾	**7.00**
1¾	⅜	1½	**2.50**	5½	2½	3¼	**9.00**
2¼	⅞	1⅞	**4.00**	6½	3⅛	3¼	**11.00**

Hargrave Superclamps

No. 42 Medium Service

Frame is forged from an extremely stiff steel and heat-treated. Screw is hardened steel with N.S.C. thread and sliding pin (vise type) handle.

Has ball and socket tip.

Opening, In. Max.	Opening, In. Min.	Depth, In.	Each	Opening, In. Max.	Opening, In. Min.	Depth, In.	Each
4	⅝	2½	**5.20**	12	8 11/16	3	**10.00**
6	2⅝	2¾	**6.40**	15	10	3¼	**12.70**
8	4 11/16	2¾	**7.50**	18	13	3¼	**16.20**
10	6 11/16	3	**8.60**	..	..	...	....

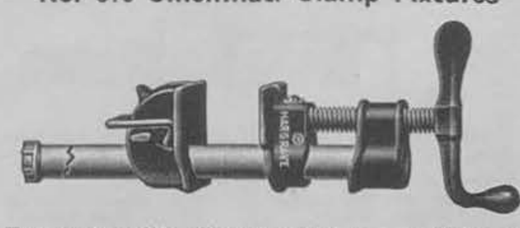
No. 44 Hargrave Superclamps

Regular Service

Frame: High carbon steel, heat treated. Will stand overload without permanent distortion. Screw: steel, heat treated; large diameter; powerful Acme thread. Oscillating (ball and socket) tip. Full length screws.

Opening, In.	2	3	4	6
Depth, In.	1¾	2¼	2½	2¾
Wt. Lbs., per Doz.	12	16	24	41
Per Doz.	**18.00**	**20.00**	**24.00**	**28.00**
Opening, In.		8	10	12
Depth, In.		3½	3½	3½
Wt. Lbs., per Doz.		63	89	99
Per Doz.		**40.00**	**56.00**	**68.00**

No. 610 Cincinnati Clamp Fixtures



Easy to assemble. Can be applied to any odd length of ¾-inch pipe. Black iron pipe is recommended, extra heavy for ordinary clamping and double extra heavy where greater pressure is required.

Malleable iron parts, steel screw, ⅝ inch in diameter, heat-treated. Clamping surfaces 1⅞ inches wide, 1⅞ inches high. Furnished without pipe.

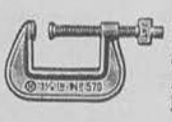
No. **610**..........................per dozen sets **$30.00**

No. 540 Hargrave Standard Clamps

Frame of best grade malleable iron, heavily reinforced and shaped to give greatest strength. Heat treated screw will not bend or break. Has deep cut "Acme" thread and long bearing, insuring long life.

Opening Inches	Price per Doz.	Depth Inches	Opening Inches	Price per Doz.	Depth Inches
2½	9.00	1¾	7	22.00	3
3	10.00	1⅞	8	28.00	3¼
4	12.00	2 1/16	10	36.00	3⅝
5	15.00	2½	12	46.00	3⅝
6	18.00	2¾	..	....	...

Hargrave "Junior" Clamps



Nos. 557, 570, 548, 555 equipped with Patented "Speed Grip" Thumb Nut. Others equipped with Sliding Pin (Vise Type) Handle.

Malleable iron frame and steel screw. Especially useful on jig and instrument work and light gluing. Frames red enameled.

No.	Per Dozen	Opening Inches	Depth Inches	No.	Per Dozen	Opening Inches	Depth Inches
557	1.80	1	½	549	3.60	2	1¼
570	2.80	1½	1⅛	550	4.50	3	1⅜
548	3.60	2	1¼	551	6.30	4	1⅝
555	6.30	1½	3½	552	9.00	6	1⅞
558	1.80	1	1½	572	6.30	2½	2½
571	2.80	1½	1½	556	9.00	2½	4½

No. 640 Hargrave Improved "I" Bar Clamps

Bar is high carbon manganese steel, 1½x⅝x⅛ ins., *shaped to stand the greatest strain.* Wide smooth flange *will not mar the work.* Notches formed in web, *leaving the bar full strength.* Malleable slide *cannot slip or bind.* Malleable tip *has case-hardened thrust bearing* for end of screw. *Hardened steel screw,* ⅝-in. diameter.

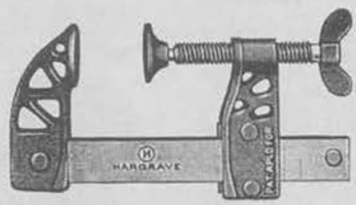
Opening, Feet	2	2½	3	4	5	6	7
Each	3.80	3.90	4.00	4.50	5.00	5.50	6.50
Per Pair	7.60	7.80	8.00	9.00	10.00	11.00	13.00

Hargrave Perfection Clamps

Made in two patterns. Regular pattern has jaws 2 in. deep, 1½ in. wide, ⅝ in. screw. Heavy pattern has clamping surface 2¼x2¼ in., ¾ in. screw.

No. 440—With 1½x¼-inch Bar (Regular Pattern)			No. 450—With 1¾x⅜-inch Bar (Heavy Pattern)		
Opening Feet	Price Each	Price per Pair	Opening Feet	Price Each	Price per Pair
2	3.80	7.60	3	8.25	16.50
2½	3.90	7.80	4	8.50	17.00
3	4.00	8.00	5	9.00	18.00
4	4.50	9.00	6	9.50	19.00
5	5.00	10.00	8	11.00	22.00
6	5.50	11.00	10	14.00	28.00

Hargrave Quick Clamps



Movable frame, stationary foot. Clutch will not slip or bind. Always easily released by hand. Depth is distance from center of screw to bar.

Opens, In.	4	6	8	10	12	18	24	36	48	60
No. 498—Bar, 1x5/16 In.—Depth, 2 In.										
dozen	30.00	30.00	31.00	32.00	33.00	36.00	40.00	.....	.....	.....
No. 514—Bar, 1¾x⅜ In.—Depth, 3 In.										
dozen	....	56.00	60.00	64.00	68.00	80.00	92.00	116.00	140.00	164.00
No. 506—Bar, 1¾x⅜ In.—Depth, 6 In.										
dozen	....	64.00	68.00	72.00	76.00	88.00	100.00	.....	.....	.....

No. 499 Hargrave Quick Clamps

Stationary Frame and Movable Foot

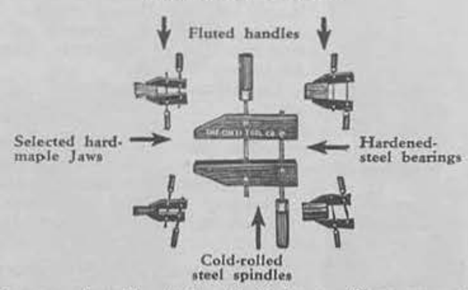
Excellent general purpose clamps. Can be instantly applied or removed. Handier to operate than ordinary clamps. Especially useful in pattern making, boat and ship building, etc. They are rigid at any opening. Bar is of high carbon manganese steel. Frame and foot are of best grade malleable. Construction prevents side twist and enables clamp to stand tremendous strain. Screw is steel, with deep cut Acme thread, long bearing. Gripping blocks are of hardened tool steel bar, 1x5/16 inch. Depth, 2 inches.

Opening, Inches	Price, per Doz.	Opening, Inches	Price, per Doz.
4	$30.00	12	33.00
6	30.00	18	36.00
8	31.00	24	40.00
10	32.00		

Hargrave Steel Spindle Hand Screws

Adjustable

Each Jaw is TESTED



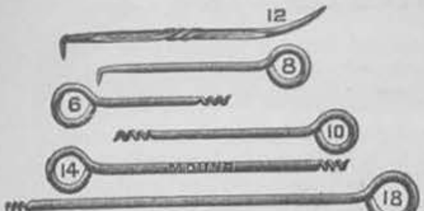
Strong, durable and satisfactory. Jaws are of selected hard maple. The spindles and bearings are steel. Spindles have deep cut Acme thread, insuring long life to the bearings. Handles are fluted, giving good grip. Workmanship and material are strictly first class, insuring satisfactory service.

Packed as follows: Four smaller sizes (6, 8, 10 and 12 in.), one-half dozen to the carton; three larger sizes (14, 16 and 18 in.), one-third dozen to the carton.

Adj. Stock No.	Price per Doz.	Length of Jaws Inches	Opening Inches	Weight per Doz Lbs.
706	18.00	6	3	10
708	21.00	8	4½	23
710	24.00	10	6	30
712	27.00	12	8½	50
714	30.00	14	10	58
716	36.00	16	12	86
718	42.00	18	14	100

Non-adjustable pattern can also be furnished, on order.

Packing Tools

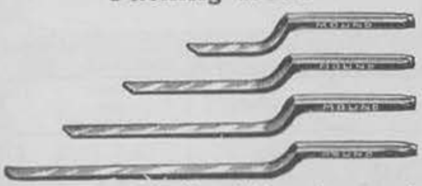


Will go into any valve rod, pump, or engine stuffing box.

Made from special tool steel and are warranted not to break in removing packing from stuffing boxes of engines, pumps, etc. The small styles are made from 3/16-inch, the medium from 1/4-inch, the large from 5/16-inch steel.

Price, No. **1-P** Set of 4 Packing Tools, Nos. 6, 10, 12, 14..per Set **1.80**
Price, No. **6-P** Set of 6 Packing Tools, Nos. 6, 8, 10, 12, 14, 18....................................per Set **2.60**

Packing Irons



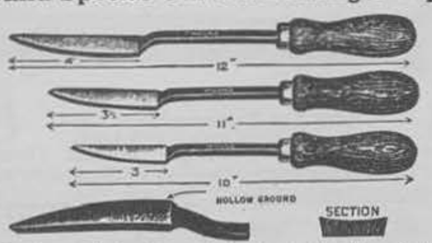
Helps to place packing in quickly and accurately. Will not cut the rod or packing.

Forged of tool steel, polished and nickel-plated.

The No. 4 set consists of a 7, 9, 11 and 14-inch packing iron.

Price, No. 4 Set of 4 Packing Irons.........	per Set	**2.50**
" 7-inch Packing Iron..............	per Dozen	**5.40**
" 9-inch " "	" "	**6.60**
" 11-inch " "	" "	**7.80**
" 14-inch " "	" "	**9.00**

Mound Special Curved Bearing Scrapers



Made from highest grade tool steel. Non-chattering. Deeply grooved and hollow-ground and carefully tempered. Blade highly polished and covered by a leather sleeve. Each set in cardboard box.

No. **114** Set of 3 ....per Set **1.90**
No. **115B** Set of 3, full polished........per Set **2.50**

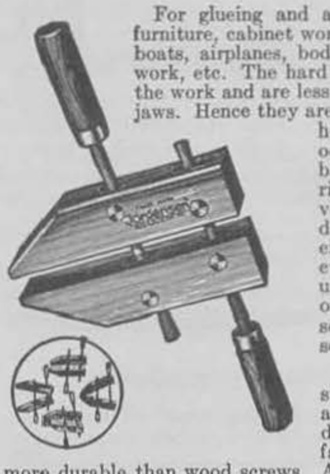
Scraping Tools

For scraping bearings, valves, babbitt metal, journals, etc.

Made of the best tool steel, carefully forged, tempered and polished so that they are true in shape.

Price, No. **1** Set of Six Flat Ground Scrapers in Case....................................per Set **5.25**
Price, No. **2** Set of Six Hollow Ground Scrapers in Case....................................per Set **6.60**

Jorgensen Peerless Adjustable Steel Spindle Handscrews



For glueing and assembly of woodwork, furniture, cabinet work, musical instruments, boats, airplanes, body work, patterns, stair work, etc. The hard maple jaws do not mar the work and are less likely to slip than steel jaws. Hence they are also most desirable for holding steel sheets, bars, odd shapes, templates, bakelite, linoleum, fabrics, insulated wire, fine veneers, etc. They have deep throat and afford either a broad area of evenly distributed pressure, or concentration at one point. Leverage of screw action gives most secure grip.

Finest hard maple straight grain seasoned and oiled jaws. Cold drawn screws and nuts, faster in operation and more durable than wood screws. Angle of jaws adjustable to fit the work or over-lap one jaw beyond the other. Threads will not strip. Glue will not adhere to the spindles. Does not come apart. Not affected by changes in climatic conditions.

No.	Per Dozen	Length Jaws In.	Open Btwn. Jaws In.	Wt. Lbs. per Doz.	No.	Per Dozen	Length Jaws In.	Open Btwn. Jaws In.	Wt. Lbs. per Doz.
5/0	$15.00	4	2	5	2	$27.00	12	8½	50
4/0	16.20	5	2½	6	3	30.00	14	10	58
3/0	18.00	6	3	12½	4	36.00	16	12	86
2/0	19.20	7	3½	15½	5	42.00	18	14	100
0	21.00	8	4½	23	6	48.00	20	14	112
1	24.00	10	6	30	7	60.00	24	17	130

Armstrong Drop Forged Eye Bolts
Blank or Threaded

Without Shoulder

With Shoulder

Armstrong Eye Bolts are of strong, uniform design, drop forged from the best mild steel and are treated to give increased tensile strength. When ordering specify whether blank or threaded eye bolts are wanted. Eye bolts with U. S. Standard thread will be shipped unless blank is specified.

No. Without Shoulder	No. With Shoulder	Blank Each	Thrd. U.S. Std. Each	Size Shank Inches Diam.	Size Shank Inches Length	Diam., Eye Inches Inside	Diam., Eye Inches Outside	Safe Working Load Tons	Wt. Lbs.
..	21	$.09	$.14	1/4	1	3/4	1 3/16	1/5	1/20
..	22	.10	.15	5/16	1 1/8	7/8	1 7/16	3/8	1/10
3	23	.11	.16	3/8	1 1/4	1	1 21/32	5/8	1/6
4	24	.12	.18	7/16	1 3/8	1 5/32	1 27/32	1	1/5
5	25	.14	.21	1/2	1 1/2	1 3/16	2 1/16	1 1/4	1/4
6	26	.17	.25	9/16	1 5/8	1 9/32	2 9/32	1 1/2	2/5
7	27	.22	.32	5/8	1 3/4	1 3/8	2 1/2	2	5/8
8	28	.30	.42	3/4	2	1 1/2	2 13/16	3	1
9	29	.40	.55	7/8	2 1/4	1 11/16	3 1/4	3 1/2	1 1/8
10	30	.55	.74	1	2 1/2	1 13/16	3 3/16	4	2
11	31	.80	1.04	1 1/8	2 3/4	2	4	5	2 3/4
12	32	1.15	1.45	1 1/4	3	2 3/16	4 3/16	7 1/2	3 1/2
14	34	2.00	2.50	1 1/2	3 1/2	2 1/2	5 5/16	9	6

Gray-Bonney Hammers

Heads on all Gray-Bonney Machinists' Hammers are drop-forged from a specially selected grade of hammer steel. They are heat-treated and are carefully hardened. Handles are fine quality, straight-grained hickory, securely fastened in the head.

All Gray-Bonney Nail Hammers are drop-forged from a selected grade of special hammer steel, carefully heat-treated. Handles are fine quality, straight-grained hickory securely fastened in the head; two of our special iron S wedges being used in all Diamond Thistle Brand, and one in all other drop forged nail hammers. They are supplied in a variety of sizes, styles and finishes to meet individual requirements.

Diamond Thistle Brand

Octagon Pattern—Ball Pein

Head, Pein and sides highly polished—Balance black enamelled. No. 1 Grade Hickory Handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
12	3 lbs.	15–1/2	$27.70
12A	2–1/2 lbs.	15–1/2	24.00
12B	2–1/4 lbs.	14–3/4	22.80
12C	2 lbs.	14–3/4	20.80
12D	1–3/4 lbs.	14–3/4	19.60
12E	1–1/2 lbs.	14–3/4	18.20
12F	1–1/4 lbs.	13	17.00
12G	1 lb.	13	15.80
12H	3/4 lb.	11	15.00
12I	8 oz.	11	15.00
12J	6 oz.	11	15.00
12K	4 oz.	11	15.00

Drop-Forged Tinners' Hammers

Diamond Thistle Brand

Paneing or Setting Pattern

Fully tempered. High polished finish. No. 1 grade hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
17	1 lb. 8 oz.	14–3/4	$21.60
17A	1 lb.	13	19.40
17B	12 oz.	13	18.50
17C	8 oz.	13	18.00

Diamond Thistle Brand Box Opener Hammer

Adze Eye Pattern

Plain Face—Highly polished, except under claws, which is black enamelled. Fully tempered. No. 1 Grade hickory handle, clear lacquer finish.

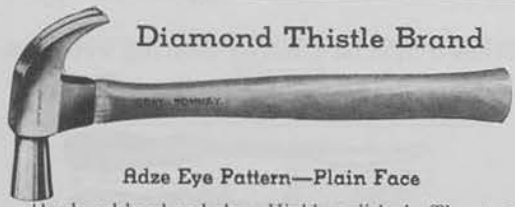
No.	Weight	Handle Length, Inches	List Price per Dozen
100	1 lb. 4 oz.	13–1/2	$22.20

Garden City Brand

Octagon Pattern—Ball Pein

Head and pein polished—balance enamelled red. White hickory handle with clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
212	3 lbs.	15–1/2	$22.20
212A	2–1/2 lbs.	15–1/2	19.20
212B	2–1/4 lbs.	14–3/4	18.00
212C	2 lbs.	14–3/4	16.60
212D	1–3/4 lbs.	14–3/4	15.60
212E	1–1/2 lbs.	14–3/4	14.60
212F	1–1/4 lbs.	13	13.60
212G	1 lb.	13	12.60
212H	3/4 lbs.	11	12.00
212I	8 oz.	11	12.00
212J	6 oz.	11	12.00
212K	4 oz.	11	12.00



Diamond Thistle Brand

Adze Eye Pattern—Plain Face

Hardened head and claw. Highly polished. Throat and under claws black enamelled. No. 1 grade hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
1	1 lb. 8 oz.	13–1/2	$25.20
1A	1 lb. 4 oz.	13–1/2	22.20
1B	1 lb.	13–1/4	19.00
1C	13 oz.	13–1/4	18.00

Garden City Brand

Adze Eye Pattern—Plain Face

Hardened head only. Full polished except throat and under claws which are red enamelled. White hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
32D	1 lb. 8 oz.	13–1/2	$20.40
32A	1 lb. 4 oz.	13–1/2	17.50
32	1 lb.	13–1/4	15.00
32B	13 oz.	13–1/4	14.40

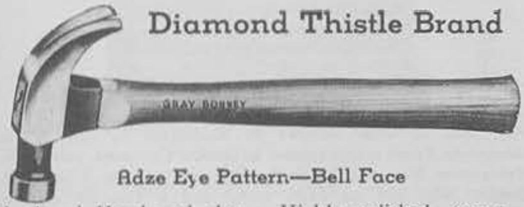
Dominion Brand

Adze Eye Pattern—Plain Face

Hardened head. Polished finish. Throat and under claws black enamelled. Hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
190	1 lb.	13-1/4	$12.00

Diamond Thistle Brand



Adze Eye Pattern—Bell Face

Hardened Head and claw. Highly polished, except throat and under claws and neck, which are black enamelled. No. 1 grade hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
2	1 lb. 4 oz.	13-1/2	$22.20
2A	1 lb.	13-1/4	19.00
2B	13 oz.	13-1/4	18.00
2C	7 oz.	13-1/4	18.00

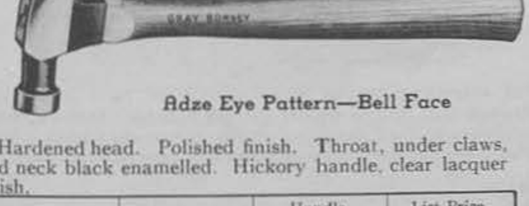
Garden City Brand

Adze Eye Pattern—Bell Face

Hardened head. Full polished except throat, neck and under claws which are red enamelled. White hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
33A	1 lb. 4 oz.	13-1/2	$17.50
33	1 lb.	13-1/4	15.00
33B	13 oz.	13-1/4	14.00
33C	7 oz.	13-1/4	14.00

Dominion Brand



Adze Eye Pattern—Bell Face

Hardened head. Polished finish. Throat, under claws, and neck black enamelled. Hickory handle, clear lacquer finish.

No.	Weight	Handle Length, Inches	List Price per Dozen
191	1 lb.	13-1/4	$12.00
191B	13 oz.	13-1/4	11.50

Solid Copper Hammers

A homogeneous casting mechanically designed, not only useful but necessary in every engine room, printing establishment and manufacturing plant operating machinery.

Will not mar machined surfaces and will wear much longer than hammers made of lead and alloyed metals.

When hammers are ordered handled, the handles are fitted to hammers properly wedged and ready for use without extra charge except for handle. Made in weights ¼, ½, 1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, and 16 pounds each.

Prices upon application.

Rawhide Faced Hammers

Rawhide Faces Inserted in Malleable Iron

For use where it is desired to strike a hard blow without injuring delicate surfaces. Metal part is practically indestructible and rawhide face is renewable.

No.	Diam. In.	Wt. Lbs.	Price per Doz.	Extra Hdles. per Doz.	Extra Faces per Doz. Prs.
0	1	½	$16.20	$1.50	$5.64
1	1¼	1⅛	18.96	1.50	6.00
2	1½	1⅝	24.12	1.50	7.20
3	1¾	2¼	28.80	1.50	9.12
4	2	4	41.76	1.50	15.84
5	2¾	5½	52.80	1.50	22.44

Standard Round Tinners' Mallets

Made from thoroughly air seasoned good quality hickory.

Diameter Inches	Length Inches	Price per Dozen
2½	6	$3.60

Rubber Mallets

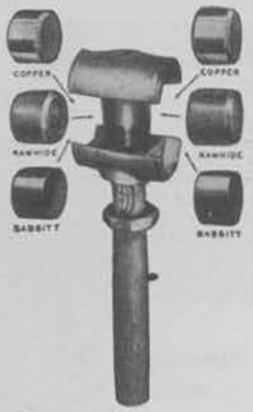
Designed for use around automobiles. Can be used without fear of marring metal parts. Made of good sturdy stock. The handle is of hardwood, jet black in color, highly enameled and it will not come off.

There is a shoulder on the end of the handle inserted through the mallet, which is molded to fit, and a special cement is used.

No.	Length Inches	Face Inches	Weight Ounces	Each
2	3¼	2	12	$.90
3	4	2⅝	25	1.40
4	4⅞	2⅝	40	2.00

Basa Hammers

A Blow without a Dent



Designed to deliver a hard blow without injuring the surface struck.

The adjustable metal head holds faces firmly; jaws are so recessed as to cause face to mushroom slightly at back and so prevent faces from falling from head due to shrinkage. In addition to the usual wedging, handles are pinned to the head of the hammer. Head is of strong, tough metal; handle is of a fine grade of straight-grained hickory molded to the grip of the worker's hand.

Faces are of special, well-seasoned rawhide, and are so constructed as to insure proper degree of resilience and have a moisture-proof finish; also copper and babbitt faces.

No.	1	2	3	4	5
Without Faces....per doz.	$12.96	16.92	19.68	25.92	30.36
With Rawhide Faces ....per doz.	18.96	24.12	28.80	41.76	52.80
Wt., with Rawhide Faces ....pounds	1¼	1¾	2⅝	4¼	6
With Copper Faces.per doz.	17.96	24.92	31.68	41.92	.....
Wt., with Copper Faces.lbs.	1¾	2½	3⅞	6¹⁄₁₆	.....
With Babbitt Faces ....per doz.	16.96	22.92	28.68	37.92	.....
Wt., with Babbitt Faces ....pounds	1¹⁵⁄₁₆	2¹³⁄₁₆	4⅜	6⅝	.....

Extra Faces for Basa Hammers

Rawhide

No.	Per Doz. Pair	Size In.
1	$6.00	1¼
2	7.20	1½
3	9.12	1¾
4	15.84	2
5	22.44	2¾

Copper

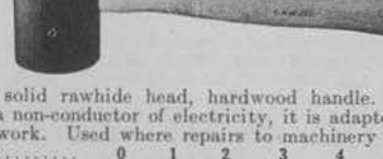
No.	Per Doz. Pair	Size In.	Wt., Lbs. per Pair
1	$5.00	1¼	¹¹⁄₁₆
2	8.00	1½	1⅛
3	12.00	1¾	1½
4	16.00	2	2¼

Babbitt

No.	Per Doz. Pair	Size In.	Wt. Lbs. per Pair
1	$4.00	1¼	¹³⁄₁₆
2	6.00	1½	1⅜
3	9.00	1¾	2⅛
4	12.00	2	2¹³⁄₁₆

Chicago Rawhide Mallets

Not Loaded



Has solid rawhide head, hardwood handle. Rawhide being a non-conductor of electricity, it is adapted to electrical work. Used where repairs to machinery are made.

No.	0	1	2	3	4	5	6
Per Dozen......	$7.92	9.60	11.16	12.72	16.08	35.64	40.32
Handles Per doz.	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Diameter.....in.	1	1¼	1½	1¾	2	2¾	2¾
Length.......in.	2⅛	3	3¼	3¼	3½	4¼	4¾
Weight......oz.	2	3½	6	7½	10	21	23

RIDGID EXTRACTORS

STANDARD LENGTH SETS

"LonGriP" SCREW EXTRACTORS

Contain "LonGriP Extractors, Drill Guides and Drills for precision extraction of threaded ends from depths in holes and ends broken off flush with the surface.

SET No. 10—For Screws of diameters ¼" to ½" incl. Maximum depth extractions 1 inch. Contains one each of Extractors Nos. 1 to 5 incl., Drills No. 1 to 5 incl., Drill Guides Nos. 921 to 1821 incl., and a No. 10 Extractor Wrench. Twenty-one precision tools. Packed in die cast box.

PER SET—$10.85

SET No. 25—For Screws of diameter 3/16" to 1" incl., and Pipe Threaded Ends of diameters ⅛" to 1" incl. Maximum depth extractions range 1 inch to 3 inches. Contains one each of Screw Extractors Nos. 0 to 8 incl., Drills Nos. 0 to 8 incl., also one No. 36, a complete set of Drill Guides and Bushings and Pipe Extractors Nos. 80 to 85 incl. Sixty-five precision tools packed in a wood box having fitted compartments.

PER SET—$41.00

RIDGID "LonGriP" PIPE EXTRACTORS

IN SETS

For extracting broken threaded ends of pipe, pipe plugs, fittings, etc., that no wrench can get hold of. Each extractor is plainly marked showing drill size to use when solid ends of plugs, fittings, etc., must be drilled to receive extractor.

Set No.			Each
880	(⅛ - ½)	Nos. 80 to 83 incl.	$ 5.60
881	(¼ - ¾)	Nos. 81 to 84 incl.	6.60
882	(¼ - 1)	Nos. 81 to 85 incl.	9.50
883	(⅛ - 1)	Nos. 80 to 85 incl.	10.45
889	(⅛ - 2)	Nos. 80 to 89 incl.	33.30

DISSTON HAND SAWS

D-8 Regular Pattern
Skew-back

Higher polish, greater beauty. Applewood handle, weatherproof finish. Brass screws. Disston-made Steel blade with Disston true-taper grind.

Length Blade	Points in. Cross-cut	Points in. Rip	Approx. Weight per Doz.
18"	9,10,11	....	13 lbs.
20"	8,9,10,11,12	....	14 lbs.
22"	7,8,9,10,11,12	7	17 lbs.
24"	5,6,7,8,9,10,11	5½,6,7	20 lbs.
26"	5,5½,6,6½,7,8,9,10,11	4½,5,5½,6	24 lbs.
28"	5,6,7,8	3½,4,4½,5,5½,6	28 lbs.
30"	5,5½,6	....	32 lbs.

Packed ⅓ dozen in box

Width of 26" blade; Butt 7⅛"; Point 2$\frac{11}{16}$"; other lengths in proportion.

D-8 Lightweight Pattern
Skew-back

The D-8 Lightweight differs from the D-8 Regular in width of blade only. Higher polish, more beautiful. Applewood handle; new weatherproof finish; brass screws. Disston-made Steel blade. Disston true-taper grind.

Length Blade	Points in. Cross-cut	Points in. Rip	Approx. Weight per Doz.
26"	7,8,9,10,11	5½	21 lbs.

Packed ⅓ dozen in box

Width of 26" blade; Butt 6¼"; Point 1½"

No. 4 Disston Back Saws

The steel back extends well into the handle, bringing the hand close to the work, giving perfect control when sawing. The shorter the blade the finer the teeth.

Size..........inches	8	10	12	14	16
No. 4.......per dozen	$28.45	30.40	34.20	38.05	42.85
Width Under Back..in.	2¼	2½	3	3½	3⅞
Thickness........gauge	23	22	22	22	21
No. Points per Inch....	16	15	14	13	12
No. Screws..........	2	2	3	3	3
Weight........pounds	10	13	18	22	26

KEYSTONE HAND SAWS

A skew-back saw. Natural finish, lacquered handle with comfortable grip.

A nicely finished, skew-back pattern. Thin back, teeth bevel filed. Mahogany color, lacquer finish, full carved handle. Four nickel-plated screws, one a medallion.

Skew-back, taper ground, extra high finish. Teeth bevel filed. Full carved, hardwood handle; mahogany color, lacquer finish. Five nickel-plated screws, one a medallion.

K-6½ CHALLENGER—Same as K-6, except lightweight (ship) pattern, straight-back.

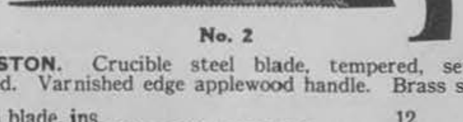
No. and Name	Length	Points to Inch—Cross-cut	Points to Inch—Rip
K-2 SPEEDSTER	26"	8	.....
K-4 FLYING ACE	26"	7, 8	5½
K-6 CHALLENGER	20" 22" 24" 26"	9, 10 9, 10 8, 9 7, 8, 9, 10	.... 5½, 6

No. 7 Disston Nest of Saws

Comprises three blades and one handle; for keyhole work, compass saw work, and cutting nails, lead pipe and light metals. Disston steel blades, hardened, tempered; taper ground. Beechwood handle. Cluster bolt and wing-nut adjustment. Reversible blades.

	Length Blade, In.	Points to Inch	Wt. Lbs. Per Doz.	Per Doz.
Keyhole Blade......	10	10	¾	4.50
Compass Blade......	14	8	2	6.50
Nail Cutting Blade...	14	12	2	7.50
Handles	..	..	4¼	4.75
No. 7 Complete.....	..	..	9	23.25

COMPASS SAWS



No. 2

DISSTON. Crucible steel blade, tempered, set and polished. Varnished edge applewood handle. Brass screws.

Length blade, ins.	12	14
Weight dozen, lbs.	5½	6

TAPER-GROUND CROSS-CUT SAWS

No. 1, Lance Perforated,

Tapering 4 gauges from tooth edge to back

The Disston No. 1, Lance Perforated, Cross-Cut Saw is used for both felling and bucking; a full-width saw, straight back; four-cutting-teeth-to-one-raker type; teeth supported by bridges.

Blade of Disston steel, excellent temper; retains keen cutting edge; ground by the Disston process on lines to conform to the tooth edge of the saw; four gauges thinner on back than on tooth edge.

Length of blades	Width at centre	Width at ends	Thickness tooth edge	Thickness back at ends	Thickness back at centre	Weight, each	Price each
4 feet	5 3/16 inches	2¾ inches	15 gauge	17 gauge	19 gauge	4 lbs.	$5.30
4½ feet	5¼ inches	2¾ inches	15 gauge	17 gauge	19 gauge	5 lbs.	6.00
5 feet	5½ inches	2⅞ inches	15 gauge	17 gauge	19 gauge	5¾ lbs.	6.60
5½ feet	5⅞ inches	3 inches	14 gauge	16 gauge	18 gauge	6¼ lbs.	7.20
6 feet	6 inches	3 inches	14 gauge	16 gauge	18 gauge	6¾ lbs.	7.80
7 feet	6½ inches	3⅜ inches	13 gauge	15 gauge	17 gauge	7½ lbs.	9.00

KEYSTONE PERFORATED LANCE

The DISSTON K-140 LANCE PERFORATED CROSS-CUT SAW is the most popular saw in the low priced field, having a standard four-cutting-teeth-to-one-raker with four gauges of tapering, being fourteen gauge on the cutting edge and eighteen gauge on the back.

K-140 5 feet **$5.00**
K-140 5½ feet **5.50**

The DISSTON K-120 LANCE PERFORATED CROSS-CUT SAW has the same type of tooth as the K-140 but is tapered only two gauges, being fourteen gauge at the tooth edge and sixteen gauge at the back.

K-120 5 feet **$4.50**
K-120 5½ feet **5.00**

No. 101, Triumph Reversible

The Disston No. 101, Triumph Reversible Handle is 12½″ long, 1¼″ in diameter at thickest part. Malleable iron bolt and wing-nut; cast iron face plate and washer. Face plate is made so handle can be reversed and attached to saw.

Weight per pair	Price 100 pair
1 3/5 lbs.	$57.00

Packed 10 pairs in carton.

No. 108, Loop

The Disston No. 108 is a loop type handle 10⅜ inches long from top of handle to bottom of washer, 1⅜ inches in diameter at thickest point. Malleable iron washer and ferrule, steel loop rod and inside nut.

Weight per pair	Price 100 pair
1¼ lbs.	$72.00

Packed 10 pairs in carton.

Disston Hand Saw Handles

To fit all Disston saws. If unable to determine number of handle wanted, furnish a template showing holes in blade by laying a piece of paper under blade and trace holes with a pencil, which will insure getting proper handle.

No.		Per Dozen For Saw, Inches 20	22-24	26
D8,	Applewood, bored and slit........	**8.55**	**8.80**	**9.75**
No. **66**	Beechwood, bored and slit.......	**3.70**		**4.10**

Disston Saw Sets

No. 8

For circular and cross cut saws. Revolving anvil with four pitches. Adjustable depth gage. Two hardened steel plungers.

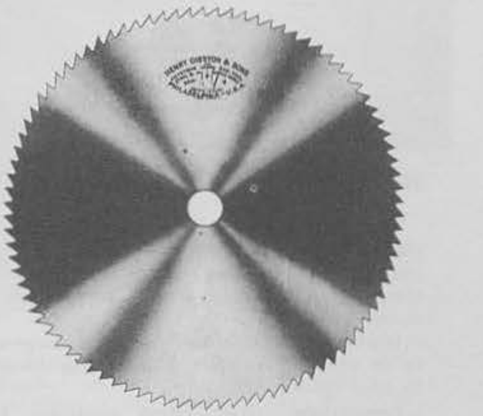
No. **8,** Length 11 inches. Weight per dozen, 24 lbs. ....Per Dozen **34.50**

No. 28

For hand, back, web, narrow band saws, etc. 10 points to the inch and coarser. Revolving anvil with four pitches. Adjustable depth gage. Two hardened steel plungers. Barff finish, polished head.

No. **28,** Length 7¼ inches. Weight per dozen, 9¾ lbs. ....Per Dozen **18.00**

WOOD CUTTING CIRCULAR SAWS



Disston Solid Tooth Circular Saws for Wood are all made of Disston Steel. From the raw materials to the finished product they are made by Disston craftsmen, working to Disston standards.

Disston Steel gives long cutting life to the blades. Correct hardening and tempering are insured by exact methods of heat control, developed by the long experience and practice of Disston craftsmen.

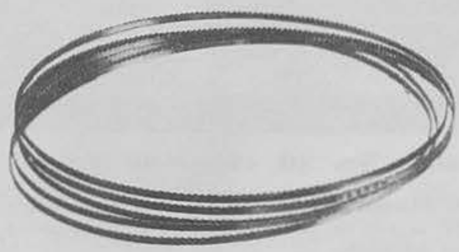
Diameter	Thickness Gauge	Size Hole	List Price Each	Extra Each Gauge Heavy	Beveling Saws per Gauge	Approx. Weight Lbs.
4″	18	¾″	$3.30	$0.07	$0.25	¼
5″	18	¾″	3.30	0.07	.25	¼
6″	18	¾″	3.30	0.07	.25	½
8″	18	⅞″	4.40	.10	.35	¾
10″	16	1″	5.60	.20	.45	1½
12″	15	1″	7.00	.30	.55	2¼
14″	14	1⅛″	8.50	.40	.65	3½
16″	14	1⅛″	10.50	.50	.75	4¾
18″	13	1¼″	12.50	.60	.90	6¾
20″	13	1⁵⁄₁₆″	15.00	.75	1.05	8½
22″	12	1⁵⁄₁₆″	17.50	.90	1.20	11¾
24″	11	1⅜″	20.50	1.05	1.35	15½
26″	11	1⅜″	24.00	1.25	1.55	18
28″	10	1½″	28.00	1.50	1.75	23½
30″	10	1½″	32.00	1.75	1.95	26¾
32″	10	1⅝″	36.50	2.00	2.15	31
34″	9	1⅝″	41.00	2.25	2.35	38
36″	9	1⅝″	47.00	2.60	2.55	43
38″	9	1⅝″	54.00	3.00	2.75	48
40″	9	2″	62.00	3.40	2.95	53
42″	8	2″	71.00	3.80	3.25	65

No extra charge for saws one gauge thicker than list.
Saws hollow ground, add for each additional gauge hollow ground, double the list for beveling.
Saws 44″ and larger in diameter beveled two gauges without extra charge; 42″ and less in diameter beveled one gauge without extra charge.
Saws of odd diameters take list of next larger size.

No extra charge for saws from one to three gauges thinner than list; where more than three gauges thinner than list add 5% for each gauge.
Saws 48″ and under and 62″ and over in diameter, and more than two gauges thinner than list, not warranted.
Saws 50″ to 60″ in diameter thinner than 10 gauge, not warranted.

Cordwood Saws—Prices on application.

NARROW BAND SAWS FOR WOOD



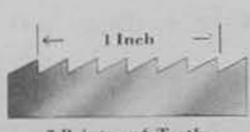
Disston Narrow Band Saws for Wood are of the same quality—made of the same steel, with the same care—as the Disston Wide Band Saws which are standard equipment in great lumber mills and woodworking plants, whose output depends upon speed and efficiency of their saws. All Disston Band Saw Steel is made in the Disston mills.

In addition to regular gauge band saws, Disston has perfected narrow band saws in thinner gauges as listed below, for use on small diameter (12 to 20 inches) wheels.

It is the toughness of Disston Steel which permits Disston Thin-Gauge Band Saws to withstand the severe bending strain on small machines. They are furnished at the same price as standard gauge saws.

Width	Thickness Gauge		Standard Points		List Price Per Foot	Joining Each
	Regular Saw	Thin Saw	Regular Saw	Thin Saw		
⅛″	22	25,	7	7	$0.13	$0.50
³⁄₁₆″	22	25,	5, 6, *7	7	.13	.50
¼″	21	25,	4, 5, 6	7	.13	.50
¼″	22	25,	5, 6, *7	7	.13	.50
¼″		25,		7	.13	.50
⅜″	21		4, 5		.14	.50
⅜″	22		5, *6		.14	.50
⅜″		25,		7	.14	.50
½″	21		3, 4, *5, 6		.15	.50
½″	22	25,	6	6, *7	.15	.50
½″		25,		6	.15	.50
½″		25,		7	.15	.50
⅝″	20, *21		3, 4, *5		.16	.60
⅝″		24		5	.16	.60
¾″	20		3, 4		.18	.60
¾″	21		*4, 5, 6		.18	.60
¾″		24		5	.18	.60
1″	19, *20		3, *4, 5		.22	.70
1¼″	20		*3, 4		.26	.70

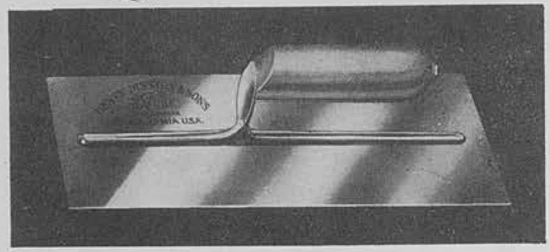
Above prices for saws set and filed. Joining extra as per list. Saws of odd widths not listed, take price of next listed size. If wanted not set and filed, deduct $4.00 per hundred feet.



7 Points or 6 Teeth

Note—order all Disston Narrow Band Saws by **Number of Points** to the inch.

In one inch space there is **one tooth less** than points. See illustration to the left.



Disston No. 28 Finishing Trowel

The Disston No. 28 Finishing Trowel is specially ground to put the weight where it belongs, giving greater flexibility.

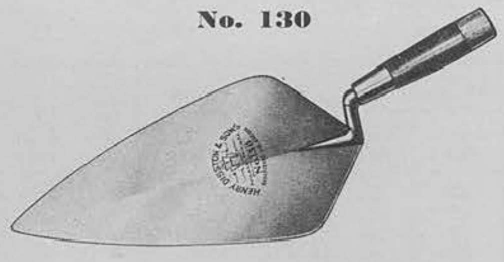
Improved mounting of specially treated ferrous metal, giving balance that lessens wrist and arm strain. Mounting securely fastened to blade by ten countersunk rivets; flat thumb rest.

Disston steel blade, hardened and tempered; lacquered to assure you receiving it in good condition.

Smooth basswood handle. Tang extends through handle, threaded on end to receive steel hexagon barrel nut and washer.

Lengths	10.	10½	11	11½	12 inches
Widths	4½	4½	4¾	4¾	5 inches
Thickness ..	24	24	24	24	24 gauge
Mounting ...	9	9	9½	10	10 inches

No. 130



The Disston No. 130 Brick Trowel has a leather-wound handle. Otherwise it is exactly the same as the No. 30.

Lengths ...	9	9½	10	10½	11	11½	12 inches
Widths	5⅜	5⅝	5¾	5⅞	6	6⅛	6⅛ inches
Weight, lbs.*	11¾	12	12¾	14	14¾	15½	16½ per doz.

Packed ½ dozen in box. *Weights approximate.

No. 153—Pointing

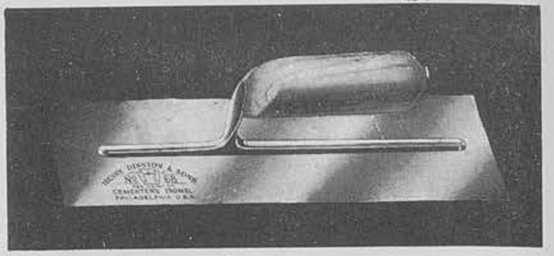
The No. 153 Standard "Philadelphia Pattern" Pointing Trowel will give good service. Post at right angles to the blade; handle set for proper lift and balance.

Blade, post, and tang forged from piece of special steel; hardened and tempered.

Hardwood handle, supported by a strong, steel ferrule.

Lengths	4	4½	5	5½	6 inches
Widths	2⅛	2¼	2½	2⅝	2¾ inches
Weight, lbs.* ..	2½	2¾	3	3¼	3½ per doz.

Packed ½ dozen in box. *Weights approximate.



Disston No. 68 Cementers' Trowel

The Disston No. 68 Cementers' Trowel is designed especially for spreading and finishing cement. Has long, strong mounting of specially treated ferrous metal. Flexible blade; correct hang; ample knuckle room.

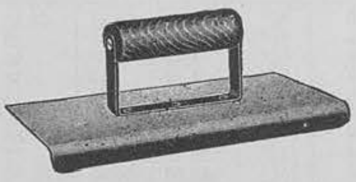
Disston steel blade, hardened and tempered; accurately ground. Lacquer finish brings blade to you in good condition.

Countersunk rivets fasten mounting to blade securely; flat thumb rest; basswood handle, smooth finish.

Tang extends through handle—threaded on end to receive steel hexagon barrel nut and washer.

Lengths	11	12	14	16	18 inches
Widths	4	4	4	4	4 inches
Thickness ..	24	24	24	24	24 gauge
Rivets	10	10	12	12	14
Mounting ...	10	10	11	13	15 inches

No. 10 Marshalltown Sidewalk Trowels

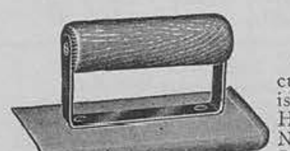


Straight ends. ⅜-inch radius. Polished steel. Black mountings. Handles mortised. Light and easy to handle.

Size, 10x4 inches.

Packed three in a box. Shipping weight, per dozen, 21 pounds.

No. **10** Sidewalk Trowels.................per Doz. **15.00**



Marshalltown Cement Edgers

One end straight; one end curved. ⅜-inch radius. Polished steel. Black mountings. Handles mortised.

No.	**175**	**176**	**177**
Size, Ins....	3x5	3x6	3x7
Per Dozen...	**9.00**	**9.00**	**9.00**

No. 265 Marshalltown Cement Groovers

Light grey iron, nickel plated, with polished face. Mortised handle.

Both ends curved. Cuts groove ½-in. deep and ½-in. wide at top. One-half dozen in box. Wt. per dozen, 12 pounds.

No. **265** Cement Groovers. 2½x5 inches. per Doz. **9.00**

No. 520 Kennedy Machinists' Cases

Neither heat nor moisture will affect case. Drawers slide easily on super-compound drawer slides that stop only after they are extended out of the case giving a clear view of the contents. Slides are very strong and will not break down. Drawers are completely lined with felt.

Case is strongly reinforced with boxed ends. Front panel, which slides under drawers when box is open, fits against drawers locking them with lid lock. Nickel silver fittings make attractive combination with seal brown ripple baked enamel finish. Packed 1 to a crate. An adjustable partition is now placed in each drawer except bottom one.

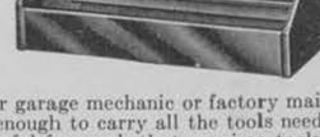
No.		520
Each		$17.50
Outside Dimensions:		
Length	inches	20
Width	inches	8½
Height	inches	13
Inside Dimensions:		
Till in Top	inches	3¾x8⅜x20
4 Drawers	inches	1 x7½x 8⅝
1 Drawer	inches	1½x7½x18¼
1 Drawer	inches	2 x7½x 8⅝
1 Drawer	inches	2½x7½x18¼
Net Weight	pounds	27
Shipping Weight	pounds	35

Kennedy All Steel General Mechanics' Kits

The 4 trays swing out of kit smoothly and easily when lids are opened. No. 1021 has compartments in top trays for socket wrenches. Leather handle, side catches and multiple change lock. Three skid rails welded to bottom. Finished in seal brown ripple baked enamel outside and dark green smooth baked enamel inside. Each kit packed in individual carton; 6 to a crate.

No.	1017	1018	1021
Each	$7.50	8.00	8.50
Dimensions in.	17x8x10	18x10x12½	21x10x12½
Ship. Wt. 6 to Crate lbs.	85	125	140

No. 19-T Kennedy Tote Trays



Handy for garage mechanic or factory maintenance man. It is large enough to carry all the tools needed on the job, and it is useful for work that requires tools to be carried away from the bench.

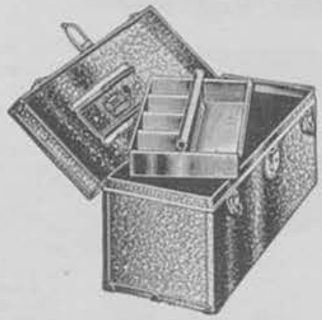
The tray is made of steel strong enough to withstand the hardest usage. A compartment for small parts or socket wrenches extends the full length of the tray. The handle fits the hand, and the tray may be carried comfortably even when heavily loaded.

19x9¾x3 inches, ship. wt. 85 lbs. Packed 12 to a crate.

No. 19-T .... eacn $1.50

Kennedy Electricians' All-Steel Kits

Divided tray extends only part of the length of kit, having room in the end for a blow torch. Three skid rails are welded to bottom. Equipped with multiple change lock, side catches, and finished with seal brown ripple baked enamel outside and dark green smooth enamel interior.



Packed in individual cartons, 6 in a crate.

No.	Each	Dimensions Inches	Ship. Wt. per Crate Lbs.
319	$5.50	19 x8x9	80
321	5.75	21 x8x9	90
324	6.00	24½x8x9	100

Kennedy Bighorn Steel Tool Kits

Tray is automatically lifted out with the opening of the lid and it rests firmly when extended.

Marproof green baked ripple enamel finish, fine white striping on lid; cadmium-plated fittings.

Double seamed ends, corner irons and full length hinge.

Packed one in a carton, 6 to a crate.

No.	Each	Dimensions Inches	Net Wt. Lbs. Oz.	Wt., Lbs. per Crate
CS16	$3.00	16x7x7	5 10	50
CS19	3.20	19x7x7	7 1	55

Kennedy Bighorn Steel Tool Kits

A loose tray box often fills requirements that swing trays can not. All-steel handle will not buckle or break. Tray has circular, electrically welded divisions. Green baked enamel ripple finish, cadmium-plated fittings. Sturdy construction. Net weight, 3 pounds 12 ounces.

Length, 14 inches; width, 6⅛ inches; height, 6¼ inches. Each kit wrapped separately; packed 12 to carton; shipping weight, 54 pounds.

No. S14 .... each $1.25

Kennedy All Steel Mechanics' Kits

Tray has handy divisions for small parts. Kit have 3 skid rails welded to bottom; outside finish of seal brown ripple baked enamel and dark green smooth interior.

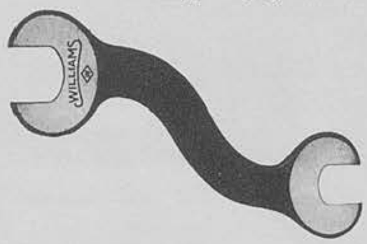
Equipped with leather handle, side catches and multiple change lock.

Each kit packed in an individual carton; 6 in a crate.

No.	116	118	120	122
Each	$5.50	5.75	6.00	6.25
Dimensions inches	16x9x11	18x10x13	20x11x13	22x11x13
Ship. Wt. per Crate lbs.	75	90	100	110

Williams' Superior Drop-Forged Flat Handle S Wrenches

Carbon Steel
22½° Angle, Double Head



Unfinished are milled and hardened.

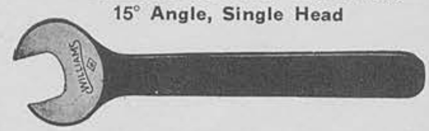
Finished are milled, surface and edges smoothed, sizes stamped on heads, hardened and black enameled (baked on)—heads bright.

No.	Unfinished Each	Finished Each	Openings Milled In.	Extreme Length Approx. In.
661D	$.37	$.44	5/16–3/8	4
661A	.37	.44	5/16–11/32	4
661E	.37	.44	5/16–7/16	4
661B	.37	.44	5/16–1/2	4
661F	.37	.44	3/8–7/16	4
661G	.37	.44	3/8–1/2	4
661C	.37	.44	11/32–1/2	4
662D	.49	.58	7/16–1/2	5
662E	.49	.58	7/16–9/16	5
662P	.49	.58	7/16–5/8	5
662F	.49	.58	1/2–9/16	5
662B	.49	.58	1/2–19/32	5
662G	.49	.58	1/2–5/8	5
662C	.49	.58	1/2–11/16	5
663D	.68	.78	9/16–5/8	6 1/4
663E	.68	.78	9/16–3/4	6 1/4
663A	.68	.78	19/32–11/16	6 1/4
663F	.68	.78	5/8–3/4	6 1/4
663G	.68	.78	5/8–13/16	6 1/4
663C	.68	.78	11/16–25/32	6 1/4
664A	.92	1.06	11/16–7/8	7 1/2
664E	.92	1.06	3/4–7/8	7 1/2
664B	.92	1.06	25/32–7/8	7 1/2
664F	.92	1.06	13/16–7/8	7 1/2
665A	1.25	1.44	7/8–31/32	9
665E	1.25	1.44	7/8–1	9
665B	1.25	1.44	7/8–1 1/16	9
665C	1.25	1.44	31/32–1 1/16	9
666A	1.75	2.00	31/32–1 1/4	10 1/2
666N	1.75	2.00	1–1 5/16	10 1/2
666B	1.75	2.00	1 1/16–1 1/4	10 1/2
666E	1.75	2.00	1 1/8–1 1/4	10 1/2
666S	1.75	2.00	1 1/8–1 5/16	10 1/2
667L	2.60	2.90	1 1/8–1 1/2	12
667A	2.60	2.90	1 1/4–1 7/16	12
667B	2.60	2.90	1 1/4–1 5/8	12
667N	2.60	2.90	1 5/16–1 1/2	12
667C	2.60	2.90	1 7/16–1 5/8	12

No.	For U.S. Std. Nuts; Size Bolts In.	For Hex. Head Cap Screws; Diam. Screws In.	For S.A.E. Std. Nuts and Cap Screws; Size Bolts In.	For Amer. Std. Nuts, Reg. and Jam; Size Bolts In.
661D	1/8	1/8–3/16	.....	.....
661A	1/8–3/16	1/8	.....	.....
661E	1/8	1/8–1/4	1/4	1/4
661B	1/8–1/4	1/8–5/16	5/16	.....
661F	.....	3/16–1/4	1/4	1/4
661G	.....	3/16–5/16	5/16	.....
661C	3/16–1/4	5/16	5/16	.....
662D	1/4	1/4–5/16	1/4–5/16	1/4
662E	.....	1/4–3/8	1/4–3/8	1/4–5/16
662P	.....	1/4–7/16	1/4–7/16	1/4–3/8
662F	1/4	5/16–3/8	5/16–3/8	5/16
662B	1/4–5/16	5/16	5/16	.....
662G	1/4	5/16–7/16	5/16–7/16	3/8
662C	1/4–3/8	5/16	5/16	.....
663D	.....	3/8–7/16	3/8–7/16	5/16–3/8
663E	.....	3/8–1/2	3/8–1/2	5/16–7/16
663A	5/16–3/8	.....	.....	.....
663F	.....	7/16–1/2	7/16–1/2	3/8–7/16
663G	.....	7/16–9/16	7/16	3/8–1/2
663C	3/8–7/16	.....	.....	.....
664A	3/8–1/2	5/8	9/16	9/16
664E	1/2	1/2–5/8	1/2–9/16	7/16–9/16
664B	7/16–1/2	5/8	9/16	9/16
664F	1/2	9/16–5/8	9/16	1/2–9/16
665A	1/2–9/16	5/8	9/16	9/16
665E	1/2	5/8–3/4	9/16–11/16	9/16–5/8
665B	1/2–5/8	5/8	9/16–3/4	9/16
665C	9/16–5/8	.....	3/4	.....
666A	9/16–3/4	.....	7/8	.....
666N	.....	3/4–1	11/16	5/8–7/8
666B	5/8–3/4	.....	3/4–7/8	.....
666E	3/4	7/8	7/8	3/4
666S	.....	7/8–1	.....	3/4–7/8
667L	.....	7/8–1 1/8	.....	3/4–1
667A	3/4–7/8	.....	7/8–1	.....
667B	3/4–1	.....	7/8–1 1/8	.....
667N	.....	1–1 1/8	.....	7/8–1
667C	7/8–1	.....	1–1 1/8	.....

Williams' Superior Drop-Forged Engineers' Wrenches

For Standard Nuts and Cap Screws
15° Angle, Single Head



Unfinished wrenches are milled, size stamped, hardened, and steelgrit-blasted. Finished wrenches are milled, surface and edges smooth, size stamped on head, hardened and black enameled (baked on)—heads bright.

Wrenches of this style but with handle tapered, furnished on orders for larger sizes, beginning with No. 11.

No.	Unfinished Each	Finished Each	For U.S. Std. Nuts Size Bolt In.	For Hex. Head Cap Screws Diam. Screw In.	For S.A.E. Std. Nuts and Cap Screws Size Bolt In.	For Amer. Std. Nut Reg. & Jam In.	Nom. Opening In.	Extreme Lgth. In.
S000	$.22	$.28	...	...	....	*Nos. 2, 3	3/16	2 1/2
S00	.22	.28	...	...	....	*No. 4	1/4	2 7/8
00	.22	.28	1/8	1/8	....	*Nos. 5, 6	5/16	3 1/2
700	.24	.30	...	3/16	....	*No. 10	3/8	4
0	.24	.30	3/16	...	....	*No. 12	13/32	4
701	.29	.36	...	1/4	1/4	1/4	7/16	4 5/8
1	.29	.36	1/4	5/16	....	....	1/2	4 5/8
702	.35	.44	...	3/8	3/8	5/16	9/16	5 1/2
2	.35	.44	5/16	...	....	....	19/32	5 1/2
703	.42	.52	...	7/16	7/16	3/8	5/8	6 3/8
3	.42	.52	3/8	...	....	....	11/16	6 3/8
704	.52	.64	...	1/2	1/2	7/16	3/4	7 1/4
4	.52	.64	7/16	...	....	....	25/32	7 1/4
705	.62	.76	...	9/16	....	1/2	13/16	8 1/8
5	.62	.76	1/2	5/8	9/16	9/16	7/8	8 1/8
6A	.76	.92	...	....	5/8	....	15/16	9 1/4
6	.76	.92	9/16	...	....	....	31/32	9 1/4
706	.76	.92	...	3/4	11/16	5/8	1	9 1/4
7	.96	1.14	5/8	...	3/4	....	1 1/16	10 1/2
707	.96	1.14	...	7/8	....	3/4	1 1/8	10 1/2
8	1.28	1.50	3/4	...	7/8	....	1 1/4	12
8A	1.28	1.50	...	1	....	7/8	1 5/16	12
708A	1.28	1.50	...	...	....	....	1 3/8	12
9	2.00	2.30	7/8	...	1	....	1 7/16	13 1/2
709	2.00	2.30	...	1 1/8	....	1	1 1/2	13 1/2
10	2.80	3.20	1	...	1 1/8	....	1 5/8	15
10A	2.80	3.20	...	1 1/4	....	1 1/8	1 11/16	15
11	3.80	4.20	1 1/8	...	1 1/4	....	1 13/16	16 1/2
11A	3.80	4.20	...	...	....	1 1/4	1 7/8	16 1/2
12	5.20	5.70	1 1/4	...	1 3/8	....	2	18 1/4
12A	5.20	5.70	...	...	....	1 3/8	2 1/16	18 1/4
13	6.70	7.30	1 3/8	...	1 1/2	....	2 3/16	20
13A	6.70	7.30	...	...	....	1 1/2	2 1/4	20
14	8.25	9.20	1 1/2	...	....	....	2 3/8	22
15	10.00	11.20	1 5/8	...	....	....	2 9/16	24
15A	10.00	11.20	...	...	....	1 3/4	2 5/8	24
16	11.90	13.40	1 3/4	...	....	....	2 3/4	27
16A	11.90	13.40	1 7/8	...	....	....	2 15/16	27
16B	11.90	13.40	...	...	....	....	2 13/16	27
17A	18.70	20.50	...	...	....	2	3	30
17	18.70	20.50	2	...	....	....	3 1/8	30
18A	27.50	29.50	...	...	....	2 1/4	3 3/8	34
18	27.50	29.50	2 1/4	...	....	....	3 1/2	34
19B	39.75	42.00	...	...	....	2 1/2	3 3/4	38
19	39.75	42.00	2 1/2	...	....	....	3 7/8	38
19C	39.75	42.00	...	...	....	2 3/4	4 1/8	38
19A	39.75	42.00	2 3/4	...	....	....	4 1/4	38
20B	58.50	62.00	...	...	....	3	4 1/2	42
20	58.50	62.00	3	...	....	....	4 5/8	42
20A	58.50	62.00	3 1/4	...	....	....	5	47
21A	**107.00**	**114.00**	3 1/2	...	....	....	5 3/8	47
21B	**107.00**	**114.00**	3 3/4	...	....	....	5 3/4	47
21C	**107.00**	**114.00**	4	...	....	....	6 1/8	47
22A	**192.00**	**204.00**	4 1/2	...	....	....	6 7/8	52
22B	**192.00**	**204.00**	5	...	....	....	7 5/8	52

*American standard machine-screw and stove-bolt nuts.

Wrenches with Hole in Handle

No.	Hole In.	No.	Hole In.	No.	Hole In.	No.	Hole In.
17	5/8	19	7/8	20	1	21B	1 1/8
17A	5/8	19A	7/8	20A	1	21C	1 1/8
18	3/4	19B	7/8	20B	1	22A	1 1/4
18A	3/4	19C	7/8	21A	1 1/8	22B	1 1/4

Williams' Superior Drop-Forged Check Nut or Thin Wrenches

15° Angle, Double Head

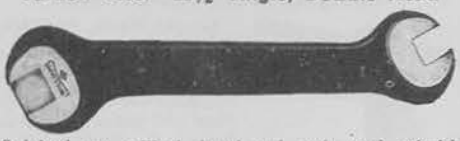
For check, jam, lock nuts, etc. Not designed for severe service. Unfinished are milled, size stamped, hardened, and steelgrit-blasted. Finished are milled, surface and edges smoothed, size stamped on head, hardened and black enameled (baked on)—heads bright.

No.	Unfinished Each	Finished Each	Nominal Openings Inches	Thick. Heads In.
623E	$.42	$.50	3/8 & 1/2	5/32
623	.42	.50	13/32 & 1/2	5/32
624	.42	.50	13/32 & 19/32	5/32
623D	.42	.50	7/16 & 1/2	5/32
624A	.42	.50	7/16 & 9/16	5/32
625	.42	.50	1/2 & 19/32	5/32
626	.54	.64	1/2 & 11/16	3/16
626S	.54	.64	9/16 & 5/8	3/16
626X	.54	.64	9/16 & 11/16	3/16
627	.54	.64	19/32 & 11/16	3/16
628	.60	.72	19/32 & 25/32	3/16
629D	.60	.72	5/8 & 3/4	3/16
629	.60	.72	11/16 & 25/32	3/16
630	.66	.80	11/16 & 7/8	7/32
630B	.66	.80	3/4 & 13/16	7/32
630E	.66	.80	3/4 & 7/8	7/32
631	.66	.80	23/32 & 7/8	7/32
632	.96	1.12	23/32 & 31/32	1/4
633A	.96	1.12	13/16 & 1	1/4
633	.96	1.12	7/8 & 31/32	1/4
634	.96	1.12	7/8 & 11/16	1/4
632X	.96	1.12	13/16 & 1	1/4
635	1.48	1.68	31/32 & 11/16	9/32
636	1.48	1.68	31/32 & 1 1/4	9/32
635D	1.48	1.68	1 & 1 1/8	9/32
635E	1.48	1.68	1 & 1 1/4	9/32
637	1.48	1.68	1 1/16 & 1 1/4	9/32
635G	1.48	1.68	1 1/8 & 1 1/4	9/32
637A	2.35	2.60	1 1/8 & 1 3/16	3/8
639	2.35	2.60	1 1/4 & 1 7/16	3/8
640	2.35	2.60	1 1/4 & 1 5/8	3/8

No.	For U.S. Std. Jam Nuts; Size Bolt, In.	For S.A.E. Std. Nuts; Size Bolt Inches	For Amer. Std. Jam Nuts; Size Bolt, In.
623E	.....	5/16	.....
623	3/16 & 1/4	5/16	.....
624	3/16 & 5/16	.....	.....
623D	1/4	1/4 & 5/16	1/4
624A	.....	1/4 & 3/8	1/4 & 5/16
625	1/4 & 5/16	5/16	.....
626	1/4 & 3/8	5/16	.....
626S	.....	3/8 & 7/16	5/16 & 3/8
626X	3/8	3/8	5/16
627	5/16 & 3/8	.....	.....
628	5/16 & 7/16	.....	.....
629D	.....	7/16 & 1/2	3/8 & 7/16
629	3/8 & 7/16	.....	.....
630	3/8 & 1/2	9/16	9/16
630B	.....	1/2	7/16 & 1/2
630E	1/2	1/2 & 9/16	7/16 & 9/16
631	7/16 & 1/2	9/16	.....
632	7/16 & 9/16	.....	.....
633A	.....	11/16	1/2 & 5/8
633	1/2 & 9/16	9/16	9/16
634	1/2 & 5/8	9/16 & 3/4	9/16
632X	.....	5/8 & 11/16	5/8
635	9/16 & 5/8	3/4	.....
636	9/16 & 3/4	7/8	.....
635D	.....	11/16	5/8 & 3/4
635E	3/4	11/16 & 7/8	5/8
637	5/8 & 3/4	3/4 & 7/8	.....
635G	3/4	7/8	3/4
637A	.....	.....	3/4 & 7/8
639	3/4 & 7/8	7/8 & 1	.....
640	3/4 & 1	7/8 & 1 1/8	.....

Williams' Superior Drop-Forged Set Screw Wrenches

Carbon Steel—22½° Angle, Double Head



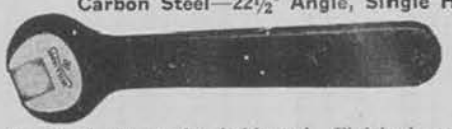
Unfinished are milled, hardened and steel grit-blasted. Finished are milled, surface and edges smoothed, sizes stamped on heads, hardened and black enameled (baked on); heads bright.

No.	Unfinished Each	Finished Each	Nominal Openings For Set Screws Size Inches	Extreme Length inches
523	$.34	$.40	3/16 & 1/4	3 1/2
*524	.40	.48	3/16 & 5/16	4 1/4
525	.40	.48	1/4 & 5/16	4 1/4
526	.48	.58	1/4 & 3/8	5
527	.48	.58	5/16 & 3/8	5
528	.58	.70	5/16 & 7/16	5 3/4
529	.58	.70	3/8 & 7/16	5 3/4
530	.74	.90	3/8 & 1/2	6 5/8
531	.74	.90	7/16 & 1/2	6 5/8
*532	.88	1.08	7/16 & 9/16	7 1/2
533	.88	1.08	1/2 & 9/16	7 1/2
534	1.07	1.30	1/2 & 5/8	8 1/2
535	1.07	1.30	9/16 & 5/8	8 1/2
*536	1.33	1.60	9/16 & 3/4	9 3/4
537	1.33	1.60	5/8 & 3/4	9 3/4
*538	1.70	2.00	5/8 & 7/8	11
539	1.70	2.00	3/4 & 7/8	11
540	2.25	2.60	3/4 & 1	12 1/2
541	2.25	2.60	7/8 & 1	12 1/2
*542	3.10	3.50	7/8 & 1 1/8	14
*543	3.10	3.50	1 & 1 1/8	14

*Furnished from stock until factory supply is exhausted; thereafter only on special order.

Williams' Superior Drop-Forged Set Screw Wrenches

Carbon Steel—22½° Angle, Single Head

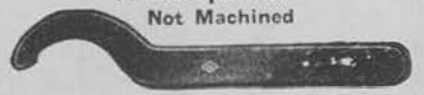


Unfinished, milled, sizes stamped hardened and steel grit-blasted. Finished are milled, surface and edges smoothed, size stamped on heads, hardened and black enameled (baked on); heads bright.

No.	Unfinished Each	Finished Each	For Set Screw Inches	Extreme Length Inches	No.	Unfinished Each	Finished Each	For Set Screw Inches	Extreme Length Inches
500	$.24	$.28	3/16	3	506	$.76	$.92	9/16	7 1/2
501	.29	.34	1/4	3 1/2	507	.91	1.10	5/8	8 1/2
502	.35	.42	5/16	4 1/4	508	1.14	1.36	3/4	9 1/2
503	.42	.50	3/8	5	509	1.43	1.68	7/8	10 1/2
504	.52	.62	5/16	5 3/4	510	1.92	2.20	1	11 1/2
505	.63	.76	1/2	6 5/8	511	2.50	2.80	1 1/8	12 1/2

Williams' Superior Drop-Forged Hook Spanners

Not Machined



No.	For Circle Diameter Inches	Forgings Will Finish for Circles Diameter Inches	Extreme Length Inches	Thickness Inches	Price Each
403	1 1/4	1 to 1 1/4	4 3/4	3/32	$.40
404	1 1/2	1 3/8 " 1 5/8	6	1/4	.46
405	2	1 3/4 " 2	7 1/8	1/4	.52
406	2 1/4	2 1/8 " 2 3/8	8 7/8	1/4	.60
407	2 5/8	2 1/2 " 2 3/4	9 3/4	1/4	.68
408	3 1/8	2 7/8 " 3 1/4	11	5/16	.80
409	3 3/4	3 3/8 " 3 7/8	12	5/16	.96
410	4 3/8	4 " 4 1/2	13	5/16	1.16
412	5 3/4	5 1/4 " 5 3/4	15	3/8	1.70

Williams' Superior Drop-Forged Socket Wrenches

Straight Pattern—Carbon Steel

Single Head, for Hexagon Nuts and Cap Screws

With or Without Pin Handle

Unhardened are broached and steel grit-blasted. Finished are broached, surface smoothed, hardened and black enameled, baked on. Unless otherwise specified wrenches with pin handles will be supplied. Wrenches of shorter or longer lengths can be furnished to order in quantities.

No.	Unhardened: Without Pin Handle Each	Unhardened: With Pin Handle Each	Finished: Without Pin Handle Each	Finished: With Pin Handle Each	For U.S. Std. Nuts Size Bolt Inches
961A	$.40	$.60	$.60	$.80	1/8
962D	.44	.66	.66	.88	..
963A	.48	.74	.72	.98	3/16
963D	.48	.74	.72	.98	..
964A	.52	.78	.78	1.04	1/4
965D	.58	.86	.88	1.16	..
965A	.58	.86	.88	1.16	5/16
966D	.64	.94	.96	1.26	..
967A	.72	1.06	1.08	1.42	3/8
967D	.72	1.06	1.08	1.42	..
968A	.80	1.14	1.20	1.54	7/16
968D	.80	1.14	1.20	1.54	..
969A	.92	1.28	1.38	1.74	1/2
970S	1.04	1.44	1.56	1.96	..
970A	1.04	1.44	1.56	1.96	9/16
970D	1.04	1.44	1.56	1.96	..
971A	1.20	1.60	1.80	2.20	5/8
971D	1.20	1.60	1.80	2.20	..
973A	1.60	2.20	2.40	3.00	3/4
*973B	1.60	2.20	2.40	3.00	..
975A	2.00	2.70	3.00	3.70	7/8
975D	2.00	2.70	3.00	3.70	..
976A	2.30	3.10	3.44	4.24	1
*976B	2.30	3.10	3.44	4.24	..
977A	2.60	3.50	3.90	4.80	1 1/8
*977B	2.60	3.50	3.90	4.80	..
978A	3.20	4.10	4.80	5.70	1 1/4
979A	4.20	5.20	6.30	7.30	1 3/8
*979B	4.20	5.20	6.30	7.30	..
980A	5.60	6.90	8.40	9.70	1 1/2

No.	For Cap Screw Diam. Screw Inches	For S.A.E. Std. Nut & Cap Screw Size Bolt, In.	For Amer. Std. Nut Reg. & Jam, In.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Extreme Length Inches
961A	..	..	..	21/64	1/2	4 1/4
962D	3/16	..	..	25/64	5/8	4 1/2
963A	..	..	..	27/64	11/16	4 7/8
963D	1/4	1/4	1/4	29/64	11/16	4 7/8
964A	5/16	5/16	..	33/64	3/4	5 1/4
965D	3/8	3/8	5/16	37/64	7/8	5 3/4
965A	..	..	..	39/64	7/8	5 3/4
966D	7/16	7/16	3/8	41/64	1	6 1/8
967A	..	..	..	45/64	1 1/8	6 1/2
967D	1/2	1/2	7/16	49/64	1 1/8	6 1/2
968A	..	..	..	51/64	1 1/4	7
968D	9/16	..	1/2	53/64	1 1/4	7
969A	5/8	9/16	9/16	57/64	1 3/8	7 3/8
970S	..	5/8	..	61/64	1 1/2	7 7/8
970A	..	..	..	63/64	1 1/2	7 7/8
970D	3/4	11/16	5/8	1 1/64	1 1/2	7 7/8
971A	..	3/4	..	1 5/64	1 5/8	8 1/4
971D	7/8	..	3/4	1 13/32	1 5/8	8 1/4
973A	..	7/8	..	1 29/32	1 7/8	9 1/8
*973B	1	..	7/8	1 31/32	1 7/8	9 1/8
975A	..	1	..	1 15/32	2 1/8	10
975D	1 1/8	..	1	1 17/32	2 1/8	10
976A	..	1 1/8	..	1 21/32	2 3/8	10 3/8
*976B	1 1/4	..	1 1/4	1 25/32	2 3/8	10 3/8
977A	..	1 1/4	..	1 27/32	2 1/4	10 7/8
*977B	..	..	1 1/4	1 29/32	2 5/8	10 7/8
978A	..	1 3/8	..	2 1/32	2 7/8	11 3/8
979A	..	1 1/2	..	2 1/32	3	11 7/8
*979B	..	..	..	2 1/32	3	11 7/8
980A	..	..	..	2 13/32	3 5/16	12 1/2

*Furnished until stock is depleted; thereafter on order.

Williams' Superior Drop-Forged Socket Wrenches

Carbon Steel Square Openings

Straight Pattern, with or without Pin Handle

Unhardened, are broached and steel grit-blasted.

Finished are broached, surface smoothed, hardened and black enameled (baked on).

Unless otherwise specified, wrenches with pin handles will be supplied.

Special broaching to order, also wrenches of shorter or longer lengths than stated in table, in quantities.

No.	Unhardened: Without Pin Handle Each	Unhardened: With Pin Handle Each	Finished: Without Pin Handle Each	Finished: With Pin Handle Each	Nominal Opening In.	Diam. Head In.
960H	$.36	$.52	$.54	$.70	1/8	5/16
961H	.40	.60	.60	.80	13/64	1/2
961J	.40	.60	.60	.80	17/64	1/2
962H	.44	.66	.66	.88	21/64	5/8
963H	.48	.74	.72	.98	25/64	11/16
965H	.58	.86	.88	1.16	29/64	7/8
966H	.64	.94	.96	1.26	33/64	1
967H	.72	1.06	1.08	1.42	37/64	1 1/8
968H	.80	1.14	1.20	1.54	41/64	1 1/4
968P	.80	1.14	1.20	1.54	45/64	1 1/4
969H	.92	1.28	1.38	1.74	49/64	1 3/8
971H	1.20	1.60	1.80	2.20	57/64	1 5/8
973H	1.60	2.20	2.40	3.00	1 1/64	1 7/8
974H	1.80	2.50	2.70	3.40	1 5/32	2
976H	2.30	3.10	3.44	4.24	1 9/32	2 3/8
977N	2.60	3.50	3.90	4.80	1 13/32	2 5/8
977X	2.60	3.50	3.90	4.80	1 15/32	2 5/8
977P	2.60	3.50	3.90	4.80	1 17/32	2 5/8
978P	3.20	4.10	4.80	5.70	1 21/32	2 7/8
979X	4.20	5.20	6.30	7.30	1 27/32	3
980X	5.60	6.90	8.40	9.70	2 1/32	3 5/16

No.	Extreme Length Approx. In.	For U. S. Std. Nut Size Bolt In.	For Cap Screw Diam. Screw In.	For Set Screw Size In.	For Amer. Std. Nut (Reg. and Jam) Bolt In.
960H	3 3/4	...	...	1/8	...
961H	4 1/4	...	...	5/16	...
961J	4 1/4	...	...	1/4	...
962H	4 1/2	...	...	5/16	...
963H	4 7/8	...	1/4	3/8	...
965H	5 3/4	...	5/16	7/16	1/4
966H	6 1/8	1/4	3/8	1/2	...
967H	6 1/2	...	7/16	9/16	5/16
968H	7	...	1/2	5/8	3/8
968P	7	3/8	9/16	...	...
969H	7 3/8	...	5/8	3/4	7/16
971H	8 1/4	1/2	3/4	7/8	9/16
973H	9 1/8	...	...	1	5/8
974H	9 1/2	...	7/8	1 1/8	3/4
976H	10 3/8	3/4	1	1 1/4	...
977N	10 7/8	...	1 1/8	...	...
977X	10 7/8	7/8	...	...	...
977P	10 7/8	...	1 1/4	...	1
978P	11 3/8	1	1 3/8	...	...
979X	11 7/8	1 1/8	...	...	...
980X	12 1/2	1 1/4	...	...	...

Williams' Superior Drop-Forged Offset Socket Wrenches

Carbon Steel Hexagon Openings

Unhardened are broached and steel grit-blasted. Finished are broached, surface smoothed, hardened and black enameled (baked on). Special broaching to order.

No.	Unhardened Each	Finished Each	Nominal Opening Across Flats In.	Diam. Head In.	Extreme Length Approx. In.
261A	$.40	$.60	21/64	1/2	3 3/8
262D	.44	.66	25/64	5/8	3 7/8
263A	.48	.72	27/64	11/16	4 5/16
263D	.48	.72	29/64	11/16	4 5/16
264A	.52	.78	33/64	3/4	5 1/8
265D	.58	.88	37/64	7/8	5 7/8
265A	.58	.88	39/64	7/8	5 7/8
266D	.64	.96	41/64	1	6 1/4
267A	.72	1.08	45/64	1 1/8	6 3/4
267D	.72	1.08	49/64	1 1/8	6 3/4
268A	.80	1.20	51/64	1 1/4	7 1/2
268D	.80	1.20	53/64	1 1/4	7 1/2
269A	.92	1.38	57/64	1 3/8	8 3/8
270S	1.04	1.56	61/64	1 1/2	9 1/8
270A	1.04	1.56	63/64	1 1/2	9 1/8
270D	1.04	1.56	1 1/64	1 1/2	9 1/8
271A	1.20	1.80	1 5/64	1 5/8	10
271D	1.20	1.80	1 5/32	1 5/8	10
273A	1.60	2.40	1 9/32	1 7/8	11 5/8
273B	1.60	2.40	1 11/32	1 7/8	11 5/8
275A	2.00	3.00	1 15/32	2 1/8	13 1/4
275D	2.00	3.00	1 17/32	2 1/8	13 1/4
276A	2.30	3.44	1 21/32	2 3/8	14 7/8
276B	2.30	3.44	1 23/32	2 3/8	14 7/8
277A	2.60	3.90	1 27/32	2 5/8	16 1/2
278A	3.20	4.80	2 1/32	2 7/8	18 1/4
279A	4.20	6.30	2 7/32	3	20
280A	5.60	8.40	2 13/32	3 5/16	21 3/4

No.	Handle Offset in Clear from Face of Wrench In.	For U.S. Standard Nut Size Bolt In.	For Cap Screw Diam. Screw In.	For S.A.E. Standard Screw and Nut In.	For Amer. Std. Nut; Reg. and Jam In.
261A	13/16	1/8	...	...	...
262D	1	...	3/16	...	...
263A	1 1/16	3/16	...	...	...
263D	1 1/16	...	1/4	1/4	1/4
264A	1 1/4	1/4	5/16	5/16	...
265D	1 7/16	...	3/8	3/8	5/16
265A	1 7/16	5/16	...	...	...
266D	1 9/16	...	7/16	7/16	3/8
267A	1 5/8	3/8	...	...	...
267D	1 5/8	...	1/2	1/2	7/16
268A	1 13/16	7/16	...	...	...
268D	1 13/16	...	9/16	...	1/2
269A	2	1/2	5/8	9/16	9/16
270S	2 3/16	...	...	5/8	...
270A	2 3/16	9/16	...	...	...
270D	2 3/16	...	3/4	11/16	5/8
271A	2 3/8	5/8	...	3/4	...
271D	2 3/8	...	7/8	...	3/4
273A	2 3/4	3/4	...	7/8	...
273B	2 3/4	...	1	...	7/8
275A	3 1/8	7/8	...	1	...
275D	3 1/8	...	1 1/8	...	1
276A	3 1/2	1	...	1 1/8	...
276B	3 1/2	...	1 1/4	...	1 1/8
277A	3 7/8	1 1/8	...	1 1/4	...
278A	4 3/8	1 1/4	...	1 3/8	...
279A	4 7/8	1 3/8	...	1 1/2	...
280A	5 3/8	1 1/2	...	..	...

Williams' Superior Drop-Forged Offset Socket Wrenches

Carbon Steel Square Openings

Unhardened wrenches are broached and steel grit-blasted.

Finished wrenches are broached, surface smoothed, hardened and black enameled (baked on).

Special broaching to order. Wrenches of shorter or longer lengths than stated in table can be furnished to order in quantities.

No.	Unhardened Each	Finished Each	Nominal Opening In.	Diam. Head In.	Extreme Length Approx. In.
260H	$.36	$.54	1/8	5/16	2 3/4
261H	.40	.60	13/64	1/2	3 3/8
261J	.40	.60	17/64	1/2	3 3/8
262H	.44	.66	21/64	5/8	3 7/8
263H	.48	.72	25/64	11/16	4 5/16
265H	.58	.88	29/64	7/8	5 7/8
266H	.64	.96	33/64	1	6 1/4
267H	.72	1.08	37/64	1 1/8	6 3/4
268H	.80	1.20	41/64	1 1/4	7 1/2
268P	.80	1.20	45/64	1 1/4	7 1/2
269H	.92	1.38	49/64	1 3/8	8 3/8
271H	1.20	1.80	57/64	1 5/8	10
273H	1.60	2.40	1 1/64	1 7/8	11 5/8
274H	1.80	2.70	1 5/32	2	12 3/8
276H	2.30	3.44	1 9/32	2 3/8	14 7/8
277N	2.60	3.90	1 13/32	2 5/8	16 1/2
277X	2.60	3.90	1 15/32	2 5/8	16 1/2
277P	2.60	3.90	1 17/32	2 5/8	16 1/2
278P	3.20	4.80	1 21/32	2 7/8	18 1/4
279X	4.20	6.30	1 27/32	3	20

No.	Handle Offset in clear from Face of Wrench In.	For Set Screw Size In.	For Cap Screw Diam. Screw In.	For U. S. Standard Nut Size Bolt In.	For American Standard Nut (Reg.) and Jam Size Bolt In.
260H	9/16	1/8	...	...	...
261H	13/16	3/16	...	...	...
261J	13/16	1/4	...	...	...
262H	1	5/16	...	...	...
263H	1 1/16	3/8	1/4	...	...
265H	1 7/16	7/16	5/16	...	1/4
266H	1 9/16	1/2	3/8	1/4	...
267H	1 5/8	9/16	7/16	...	5/16
268H	1 13/16	5/8	1/2	...	3/8
268P	1 13/16	...	9/16	3/8	...
269H	2	3/4	5/8	...	7/16
271H	2 3/8	7/8	3/4	1/2	9/16
273H	2 3/4	1	...	...	5/8
274H	2 7/8	1 1/8	7/8	...	3/4
276H	3 1/2	1 1/4	1	3/4	...
277N	3 7/8	...	1 1/8	...	...
277X	3 7/8	...	...	7/8	...
277P	3 7/8	...	1 1/4	...	1
278P	4 3/8	...	1 3/8	1	...
279X	4 7/8	...	...	1 1/8	

GRAY-BONNEY Drop-Forged Engineers' Wrenches

Carbon Steel
15° Angle, Double Head

Unfinished have openings milled, shanks smooth, and are hardened.

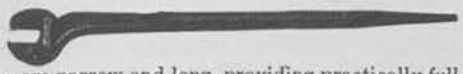
Finished have openings milled, surface and edges smoothed, sizes stamped on heads, hardened and black enameled (baked on)—heads bright.

No.	Unfinished Each	Finished Each	For U.S. Std. Nuts; Size Bolts In.	For Hex. Head Cap Screws; Diam. Screws In.	For S.A.E. Std. Nut and Cap Screws; Size Bolts In.	For Amer. Std. Nuts; Reg. and Jam Size Bolts In.	Openings Milled In.	Extreme Length, Approx. In.
721	$ .28	$ .34	1/8	1/8- 3/16	.....	.....	5/16 - 3/8	4
21	.28	.34	1/8- 5/16	1/8	.....	.....	5/16 - 13/32	
722	.34	.42	1/8	1/8- 1/4	1/4	1/4	5/16 - 7/16	
22	.34	.42	1/8- 1/4	1/8- 5/16	5/16	.....	5/16 - 1/2	4 1/4
723	.34	.42	.....	3/16- 1/4	1/4	1/4	3/8 - 7/16	
723A	.34	.42	1/4	5/16- 5/16	5/16	.....	3/8 - 1/2	
23	.34	.42	3/16- 1/4	5/16	5/16	.....	13/32- 1/2	4 5/8
724	.40	.50	.....	3/16- 3/8	3/8	5/16	3/8 - 9/16	
24	.40	.50	3/16- 5/16	.....	.....	.....	13/32- 19/32	5
725	.40	.50	1/4	1/4- 5/16	1/4- 5/16	1/4	7/16 - 1/2	
725A	.40	.50	.....	1/4- 3/8	1/4- 3/8	1/4- 5/16	7/16 - 9/16	
25A	.40	.50	.....	1/4- 7/16	1/4- 7/16	1/4- 3/8	7/16 - 5/8	
725B	.40	.50	1/4	5/16- 3/8	5/16- 3/8	5/16	1/2 - 9/16	5 1/2
25	.40	.50	1/4- 5/16	5/16	5/16	.....	1/2 - 19/32	
726	.50	.62	1/4	5/16- 7/16	5/16- 7/16	3/8	1/2 - 5/8	
26	.50	.62	1/4- 3/8	5/16	5/16	.....	1/2 - 11/16	6
727	.50	.62	.....	3/8- 7/16	3/8- 7/16	5/16- 3/8	9/16 - 5/8	
27C	.50	.62	3/8	3/8	3/8	5/16	9/16 - 11/16	
27	.50	.62	5/16- 3/8	.....	.....	.....	19/32- 11/16	6 1/2
728	.60	.74	.....	3/8- 1/2	3/8- 1/2	5/16- 7/16	9/16 - 3/4	
28	.60	.74	5/16- 7/16	.....	.....	.....	19/32- 25/32	7
729	.60	.74	.....	7/16- 1/2	7/16- 1/2	3/8- 7/16	5/8 - 3/4	
28S	.60	.74	7/16	7/16	7/16	3/8	5/8 - 25/32	
29	.60	.74	3/8- 7/16	.....	.....	.....	11/16- 25/32	7 1/2
730	.74	.90	.....	7/16- 9/16	7/16	3/8- 1/2	5/8 - 13/16	
730A	.74	.90	1/2	7/16- 5/8	7/16- 9/16	3/8- 9/16	5/8 - 7/8	8
30	.74	.90	3/8- 1/2	5/8	9/16	9/16	11/16- 7/8	
731	.74	.90	.....	1/2- 9/16	1/2	7/16- 1/2	3/4 - 13/16	
731A	.74	.90	1/2	1/2- 5/8	1/2- 9/16	7/16- 9/16	3/4 - 7/8	
31	.74	.90	7/16- 1/2	5/8	9/16	9/16	25/32- 7/8	8 3/4
731B	.74	.90	1/2	9/16- 5/8	9/16	1/2- 9/16	13/16- 7/8	
32	.90	1.10	7/16- 9/16	.....	.....	.....	25/32- 31/32	
732	.90	1.10	.....	9/16- 3/4	11/16	1/2- 5/8	13/16-1	
33A	.90	1.10	1/2	5/8	9/16- 5/8	9/16	7/8 - 15/16	
33	.90	1.10	1/2- 9/16	5/8	9/16	9/16	7/8 - 31/32	9 1/2
733	.90	1.10	1/2	5/8- 3/4	9/16- 11/16	9/16- 5/8	7/8 -1	
33C	.90	1.10	.....	3/4	5/8- 11/16	5/8	15/16-1	
34	1.12	1.36	1/2- 5/8	5/8	9/16- 3/4	9/16	7/8 -1 1/16	
734	1.12	1.36	1/2	5/8- 7/8	9/16	9/16- 3/4	7/8 -1 1/8	10 3/4
34A	1 12	1 36	5/8	.....	5/8- 3/4	.....	15/16-1 1/16	
35	1.12	1.36	9/16- 5/8	.....	3/4	.....	31/32-1 1/16	
735	1.12	1.36	.....	3/4- 7/8	11/16	5/8- 3/4	1 -1 1/8	10 3/4
36	1.62	1.92	9/16- 3/4	.....	7/8	.....	31/32-1 1/4	
736	1.62	1 92	3/4	3/4	11/16- 7/8	5/8	1 -1 1/4	
736A	1 62	1 92	.....	3/4-1	11/16	5/8- 7/8	1 -1 5/16	
37	1.62	1.92	5/8- 3/4	.....	3/4- 7/8	.....	1 1/16 -1 1/4	12
737	1.62	1.92	3/4	7/8	7/8	3/4	1 1/8 -1 1/4	
37A	1.62	1.92	.....	7/8-1	.....	3/4- 7/8	1 1/8 -1 5/16	
38	2.40	2.80	5/8- 7/8	.....	3/4- 1	.....	1 1/16 -1 7/16	
38A	2.40	2.80	.....	7/8-1 1/8	.....	3/4-1	1 1/8 -1 1/2	
739	2.40	2.80	3/4	.....	7/8	.....	1 1/4 -1 3/8	
39	2.40	2.80	3/4- 7/8	.....	7/8-1	.....	1 1/4 -1 7/16	13 1/2
739A	2.40	2.80	3/4	1 1/8	7/8	1	1 1/4 -1 1/2	
39A	2.40	2.80	.....	1 -1 1/8	.....	7/8-1	1 5/16 -1 1/2	
40	3.30	3.80	3/4-1	.....	7/8-1 1/8	.....	1 1/4 -1 5/8	
40A	3.30	3.80	.....	1 -1 1/4	.....	7/8-1 1/8	1 5/16 -1 11/16	15 1/2
41	3.30	3.80	7/8-1	.....	1 -1 1/8	.....	1 7/16 -1 5/8	
42	4.60	5.30	7/8-1 1/8	.....	1 -1 1/4	.....	1 7/16 -1 13/16	
42A	4.60	5.30	.....	1 1/8-1 1/4	.....	1 -1 1/8	1 1/2 -1 11/16	17
42B	4.60	5.30	.....	1 1/8	.....	1 -1 1/4	1 1/2 -1 7/8	
43	4.60	5.30	1 -1 1/8	.....	1 1/8-1 1/4	.....	1 5/8 -1 13/16	
44	6.25	7.20	1 -1 1/4	.....	1 1/8-1 3/8	.....	1 5/8 -2	
44A	6.25	7.20	.....	1 1/4	.....	1 1/8-1 1/4	1 11/16-1 7/8	19
45	6.25	7.20	1 1/8-1 1/4	.....	1 1/4-1 3/8	.....	1 13/16-2	
46A	9.30	10.50	.....	1 1/4	.....	1 1/8-1 1/2	1 11/16-2 1/4	
46	9.30	10.50	1 1/8-1 3/8	.....	1 1/4-1 1/2	.....	1 13/16-2 5/16	21
47A	9.30	10.50	.....	.....	.....	1 1/4-1 1/2	1 7/8 -2 1/4	
47	9.30	10.50	1 1/4-1 3/8	.....	1 3/8-1 1/2	.....	2 -2 5/16	
48	12.50	14.00	1 1/4-1 1/2	.....	1 3/8	.....	2 -2 3/8	
49	12.50	14.00	1 3/8-1 1/2	.....	1 1/2	.....	2 5/16 -2 3/8	23

GRAY-BONNEY Drop-Forged

Structural Wrenches

Straight Opening, Carbon Steel



Jaws are narrow and long, providing practically full bearing on square nuts. Long handle is round, with tapered end for easy insertion into bolt holes. Abrupt offset and angle of handle provide for clearance of obstructions.

Opening milled, steel grit-blasted, hardened all over; head not ground.

No.	Each	For U. S. Std. Nuts Size Bolt Inches	Amer. Std. Reg. Nut Size Bolt Inches	Nominal Opening Inches	Extreme Length Inches	Thickness Head Inches	Handle Offset Inches: At Head	Handle Offset Inches: At End
901A	$.80	...	1/4	7/16	9 1/2	11/32	9/16	1 1/2
901	.80	1/4	...	17/32	9 1/2	11/32	9/16	1 1/2
901B	.80	...	5/16	9/16	9 1/2	11/32	9/16	1 1/2
902	.80	5/16	...	*5/8	9 1/2	11/32	9/16	1 1/2
903A	1.05	...	3/8	5/8	12	7/16	3/4	1 11/16
903	1.05	3/8	...	23/32	12	7/16	3/4	1 11/16
904A	1.05	...	7/16	3/4	12	7/16	3/4	1 11/16
904	1.05	7/16	...	13/16	12	7/16	3/4	1 11/16
905A	1.40	...	1/2	13/16	14 1/2	17/32	7/8	1 7/8
905B	1.40	...	9/16	7/8	14 1/2	17/32	7/8	1 7/8
905	1.40	1/2	...	29/32	14 1/2	17/32	7/8	1 7/8
906	1.40	9/16	5/8	1	14 1/2	17/32	7/8	1 7/8
907	1.85	5/8	...	1 7/64	17	5/8	1	2 3/8
907A	1.85	...	3/4	1 1/8	17	5/8	1	2 3/8
908	2.35	3/4	...	1 19/64	19	11/16	1 1/8	2 3/4
908A	2.35	...	7/8	1 5/16	19	11/16	1 1/8	2 3/4
909	3.00	7/8	1	1 1/2	21	3/4	1 1/4	3 1/16
910	4.10	1	1 1/8	1 11/16	23	13/16	1 7/16	3 3/8
910A	4.10	1 1/8	1 1/4	1 7/8	23	13/16	1 7/16	3 3/8
911	6.15	1 1/8	1 1/4	1 7/8	25	7/8	1 5/8	3 11/16
912	6.15	1 1/4	...	2 1/16	25	7/8	1 5/8	3 11/16

*Will not fit 3/8-inch American Standard Nut. Though nominal opening is same, clearance is different.

GRAY-BONNEY Chrome-Vanadium Steel

Structural Pattern—Straight Opening

Jaws are narrow and long. Handle is round with tapered end for easy insertion in bolt holes. Abrupt offset and angle of handle provide for clearance of obstructions.

Fully guaranteed.

No.	Cadmium Plated Each	For U.S. Std. Nut Size Bolt In.	Amer. Std. Reg. Nut Size Bolt In.	Nom. Opening In.	Extreme Length Approx. In.	Thick. Head In.	Handle Offset, In.: At Head	Handle Offset, In.: At End
1903A	1.60	...	3/8	5/8	12	7/16	3/4	1 11/16
1903	1.60	3/8	...	*11/16	12	7/16	3/4	1 11/16
1905A	2.15	...	1/2	13/16	14 1/2	17/32	7/8	1 7/8
1905	2.15	1/2	9/16	*7/8	14 1/2	17/32	7/8	1 7/8
1906	2.15	9/16	...	*31/32	14 1/2	17/32	7/8	1 7/8
1906	2.15	...	5/8	1	14 1/2	17/32	7/8	1 7/8
1907	3.00	5/8	...	*1 1/16	17	5/8	1	2 3/8
1907A	3.00	...	3/4	1 1/8	17	5/8	1	2 3/8
1908	4.15	3/4	...	*1 1/4	19	11/16	1 1/8	2 3/4
1908A	4.15	...	7/8	1 5/16	19	11/16	1 1/8	2 3/4
1909	5.60	7/8	...	*1 7/16	21	3/4	1 1/4	3 1/16
1909	5.60	...	1	1 1/2	21	3/4	1 1/4	3 1/16
1910	7.80	1	...	*1 5/8	23	13/16	1 7/16	3 3/8
1910	7.80	...	1 1/8	1 11/16	23	13/16	1 7/16	3 3/8
1911	11.80	1 1/8	...	*1 13/16	25	7/8	1 5/8	3 11/16
1911	11.80	...	1 1/4	1 7/8	25	7/8	1 5/8	3 11/16
1912	11.80	1 1/4	...	*2	25	7/8	1 5/8	3 11/16

*Based on U.S.S. nut formula. Actual openings are 1/32 to 1/16 inch larger for proper clearance on rough nuts and bolts.

GRAY-BONNEY

Drop Forged Chrome Vanadium

Engineers' Pattern, 15° Angle, Double Head

Nickel Plated with Polished Heads

Gray-Bonney Chrome Vanadium Engineers' Wrenches are correctly designed and are thin and light in weight. They can be used where ordinary wrenches, owing to their thickness and design, are useless.

Fully guaranteed.

No.	Chrome Fin. Each	For U. S. Std. Nuts Size Bolts In.	For Hex. Head Cap Screws Diam. Screws In.	For S.A.E. Std. Nuts and Cap Screws Size Bolts In.	For Amer. Std. Nuts; Reg. and Jam Size Bolts In.	Openings Milled In.	Extreme Lgth. In.	Thickness Head In.
1721	$.80	1/8	1/8, 3/16	.....	.....	5/16, 3/8	4 1/4	13/64
1021	.80	1/8, 5/16	1/8	...	.....	5/16, 13/32	4 1/4	13/64
1722	.85	1/8	1/8, 1/4	1/4	1/4	5/16, 7/16	4 1/4	13/64
1723	.85	.....	5/16, 1/4	1/4	1/4	3/8, 7/16	4 1/4	13/64
1022	.90	1/8, 1/4	1/8, 5/16	5/16	.....	5/16, 1/2	4 3/4	7/32
1023	.90	5/16, 1/4	5/16	5/16	.....	13/32, 1/2	4 3/4	7/32
1723A	.90	...	1/4 3/16, 5/16	5/16	.....	3/8, 1/2	4 3/4	7/32
1024	1.05	5/16, 5/16	.....	.....	.....	13/32, 19/32	5 1/2	15/64
1725	1.05	...	1/4, 5/16	1/4, 5/16	1/4	7/16, 1/2	5 1/2	15/64
1725A	1.05	.....	1/4, 3/8	1/4, 3/8	1/4, 5/16	7/16, 9/16	5 1/2	15/64
1025A	1.05	.....	1/4, 7/16	1/4, 7/16	1/4, 3/8	7/16, 5/8	5 1/2	15/64
1725B	1.05	1/4	5/16, 3/8	5/16, 3/8	5/16	1/2, 9/16	5 1/2	15/64
1025	1.05	1/4, 5/16	5/16	5/16	.....	1/2, 13/32	5 1/2	15/64
1726	1.25	1/4	5/16, 7/16	5/16, 7/16	3/8	1/2, 5/8	6 1/2	9/32
1026	1.25	1/4, 3/8	5/16	5/16	.....	1/2, 11/16	6 1/2	9/32
1727	1.30	.....	3/8, 7/16	3/8, 7/16	5/16, 3/8	9/16, 5/8	6 1/2	9/32
1027	1.25	5/16, 3/8	.....	.....	.....	19/32, 11/16	6 1/2	9/32
1027C	1.30	3/8	3/8	3/8	5/16	9/16, 11/16	6 1/2	9/32
1728	1.65	.....	3/8, 1/2	3/8, 1/2	5/16, 7/16	9/16, 3/4	7 3/4	5/16
1028	1.65	5/16, 7/16	.....	.....	.....	19/32, 25/32	7 3/4	5/16
1028S	1.50	7/16	7/16	3/8	5/8, 25/32	7 3/4	5/16
1729	1.50	.....	7/16, 1/2	7/16, 1/2	3/8, 7/16	5/8, 3/4	7 3/4	5/16
1029	1.50	3/8, 7/16	.....	.....	.....	11/16, 25/32	7 3/4	5/16
1730	1.65	.....	7/16, 9/16	7/16	3/8, 1/2	5/8, 13/16	7 3/4	5/16
1030	1.65	3/8, 1/2	5/8	9/16	9/16	11/16, 7/8	7 3/4	5/16
1731	2.00	.....	1/2, 9/16	1/2	7/16, 1/2	3/4, 13/16	9 1/4	3/8
1731A	2.00	1/2	1/2, 5/8	1/2, 9/16	7/16, 9/16	3/4, 7/8	9 1/4	3/8
1031	2.10	7/16, 1/2	5/8	9/16	9/16	25/32, 7/8	9 1/4	3/8
1731B	2.10	1/2	9/16, 5/8	9/16	1/2, 9/16	13/16, 7/8	9 1/4	3/8
1032	2.10	7/16, 9/16	.....	.....	.....	25/32, 31/32	9 1/4	3/8
1732	2.10	.....	9/16, 3/4	11/16	1/2, 5/8	13/16, 1	9 1/4	3/8
1732A	2.10	.....	1/2, 3/4	1/2, 11/16	7/16, 5/8	3/4, 1	9 1/4	3/8
1033A	2.10	1/2	5/8	9/16, 5/8	9/16	7/8, 15/16	9 1/4	3/8
1033	2.00	1/2, 9/16	5/8	9/16	9/16	7/8, 31/32	9 1/4	3/8
1733	2.85	1/2	5/8, 3/4	9/16, 11/16	9/16, 5/8	7/8, 1	10 3/4	7/16
1033C	2.70	.....	3/4	5/8, 11/16	5/8	15/16, 1	10 3/4	7/16
1034	2.85	1/2, 5/8	5/8	9/16, 3/4	9/16	7/8, 1 1/16	10 3/4	7/16
1034A	2.70	5/8	.....	5/8, 3/4	.....	15/16, 1 1/16	10 3/4	7/16
1734	2.85	1/2	5/8, 7/8	9/16	9/16, 3/4	7/8, 1 1/8	10 3/4	7/16
1035	2.70	9/16, 5/8	.....	3/4	.....	31/32, 1 1/16	10 3/4	7/16
1735	2.70	.....	3/4, 7/8	11/16	5/8, 3/4	1 , 1 1/8	12 1/4	1/2
1036	3.90	9/16, 3/4	.....	7/8	.....	31/32, 1 1/4	12 1/4	1/2
1736	3.90	3/4	3/4	11/16, 7/8	5/8	1 , 1 1/4	12 1/4	1/2
1736A	3.90	.....	3/4, 1	11/16	5/8, 7/8	1 , 1 5/16	12 1/4	1/2
1037	3.90	5/8, 3/4	.....	3/4, 7/8	.....	1 1/16, 1 1/4	12 1/4	1/2
1737	3.90	3/4	7/8	7/8	3/4	1 1/8, 1 1/4	12 1/4	1/2
1037A	3.90	.....	7/8, 1	.....	3/4, 7/8	1 1/8, 1 5/16	12 1/4	1/2

Gray-Bonney Standard Sockets and Attachments

1/2" Square Drive — Alloy Steel

Gray alloy steel sockets are made from 3 1/2% high carbon nickel alloy steel. These sockets are hot forged without undercut at the bottom of the gripping wall. This is a decided advance over sockets machined from the solid bar. Gray sockets are correct in design, carefully heat treated and nickel plated.

Consult this table carefully when ordering sockets.

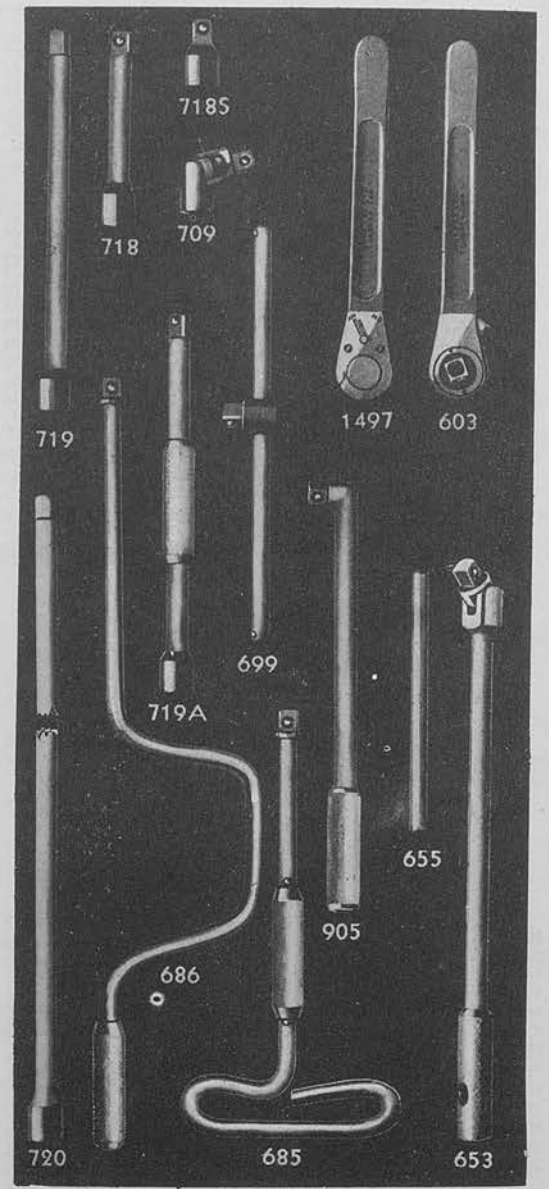
Opening	Double Hex.	Single Hex.	List	Straight Wall Db. Hex.	List
3/8"	....	406	$0.80	....	....
7/16"	D407	407	.80	1407	$.90
1/2"	D408	408	.80	1408	.90
9/16"	D409	409	.80	1409	1.00
19/32"	D419	419	.80	1419	1.00
5/8"	D410	410	1.00	1410	1.05
21/32"	D421	421	1.00	1421	1.05
11/16"	D411	411	1.00	1411	1.05
3/4"	D412	412	1.05	1412	1.20
25/32"	D425	425	1.15	1425	1.25
13/16"	D413	413	1.20	1413	1.25
7/8"	D414	414	1.20	1414	1.35
15/16"	D415	415	1.25	1415	1.20
31/32"	D431	431	1.25	1431	1.35
1"	D432	...	1.45	1432	1.50
1-1/16"	D433	...	1.50	1433	1.65
1-1/8"	D434	...	1.80	1434	1.95
1-1/4"	D435	...	1.95	1435	2.10

Double Square Sockets

Opening	List	Net	Opening	No.	List
3/8"	4112	$0.90	11/16"	D411S	$1.20
7/16"	D407S	.90	3/4"	4124	1.30
1/2"	D408S	1.00	7/8"	4128	1.35
9/16"	D409S	1.05	1"	4132	1.80
5/8"	4120	1.05			

Handles and Attachments

No.	Description	List
403	Connector for 603 Ratchet	$0.75
603	Ratchet Handle	5.25
652	Flexible Handle 12" Long	4.20
653	Flexible Handle 15" Long	4.95
655	Cross Bar for Flex Handle	.45
685	Tee Handle revolving grip 12" long	2.55
686	Speeder with revolving grip 19" long	2.40
687	Speeder with rev. grip 14-1/2" long	2.25
699	Sliding Tee Handle 11" long	2.40
709	Universal Joint	3.30
718	Forged Extension 5" long	1.50
718S	Forged Extension 2" long	1.05
719	Forged Extension 10" long	1.80
719A	Forged Extension 10" long with revolving hand grip	2.10
720	Forged Extension 20" long	2.40
905	Offset Handle 11-1/2" long	2.70
1497	Reversible Ratchet	6.60



Gray-Bonney Hy-Duty Sockets and Attachments

3/4" Square Drive — Alloy Steel

Gray-Bonney Hy-Duty sockets have been carefully designed and engineered to give the ultimate in strength and dependability. They have the rugged strength only found in hot forged sockets, and the extra depth of the gripping walls eliminates the possibility and consequent danger of slipping. These sockets are ideal for work on trucks and busses, as well as in industrial and railroad shops.

Consult this table carefully when ordering sockets

3/4" Square Handle Opening

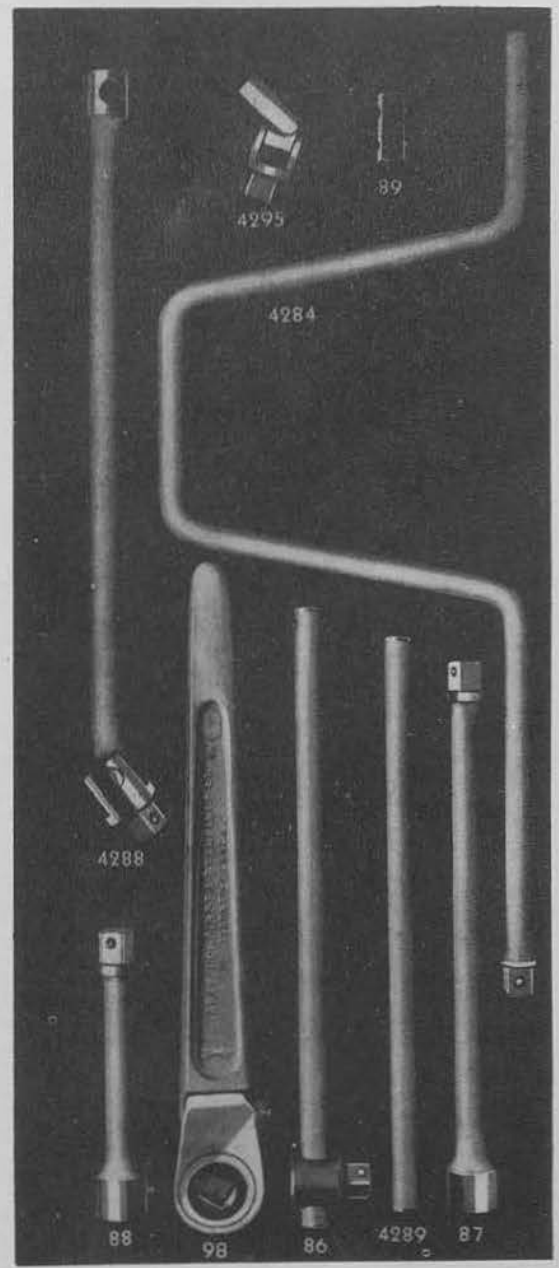
No.	Socket Size	List
90	1" Double Hexagon	$1.50
91	1-1/16" "	1.65
92	1-1/8" "	1.80
93	1-1/4" "	2.10
94	1-3/8" "	2.25
95	1-7/16" "	2.40
96	1-1/2" "	2.85
97	1-5/8" "	3.15
102	1-3/4" "	4.35
103	1-13/16" "	4.80
104	1-7/8" "	5.70
106	2" "	6.00

Additional Hy-Duty Sockets

No.	Socket Size	List
HD28	7/8" Double Hexagon	$1.50
HD30	15/16" "	1.80
HD31	31/32" "	1.80
HD38	1-3/16" "	2.10
HD42	1-5/16" "	2.25
HD50	1-9/16" "	2.85
4254	1-11/16" Single Hexagon	$4.50
4266	2-1/16" "	6.45
4268	2-1/8" "	6.75
4270	2-3/16" "	7.20
4272	2-1/4" "	7.95
S4228	7/8" Double Square	$3.30
S4232	1" "	3.45
S4234	1-1/16" "	3.45
S4240	1-1/4" "	4.20
S4246	1-7/16" "	6.00

Hy-Duty Handles & Attachments

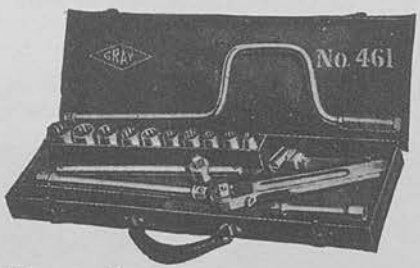
No.	Description	List
86	Sliding Tee Handle 17-1/2" long	$5.25
87	Extension 15-1/2" long	4.50
88	Extension 8" long	3.75
89	3/4" Plug Connector	1.20
98	Ratchet Handle 19" long	15.00
4284	Brace	7.90
4288	Hinge Handle 32" long	9.00
4289	Cross Bar for Flex. Handle	1.65
4295	Universal Joint	10.70



Gray-Bonney Socket Sets

No. 461 Socket Set

1/2" Square Drive



An efficient set with all the necessary handles and sockets, of the highest quality, yet comparatively low in price.

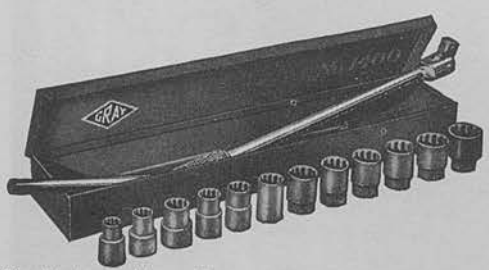
The following sockets and handles are contained in the set:

No.	Description	No.	Description
D407	Dbl. Hex. Socket	D414	Dbl. Hex. Socket
D408	"	603	Ratchet Handle
D409	"	403	RatchetConnector
D419	"	699	Sliding Tee
D410	"	718	Forged Exten. 5"
D421	"	719	Forged Exten. 10"
D411	"	709	Universal Joint
D412	"	686	Speeder 19"
D413	"		

No. 461 Set in Steel Box.....Net **$30.50**
No. 461 Set without Box.....Net **26.30**

No. 1400 Straight Wall Spinner Set

1/2" Square Drive



The latest type thin straight wall sockets, hot forged from high carbon nickel alloy steel, are used in this set. The flex handle is supplied with a cross bar. Sockets are satin nickel with polished walls.

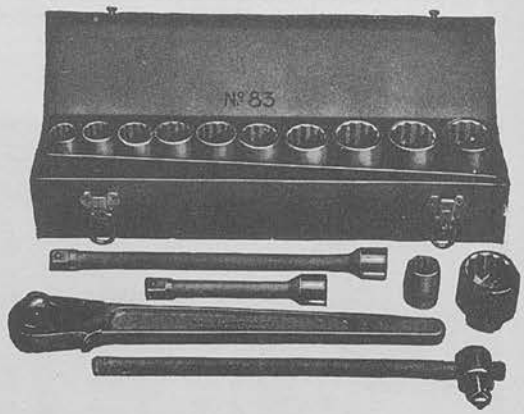
The following sockets and handles are contained in the set:

No.	Description	No.	Description
1407	Dbl. Hex. Socket	1412	Dbl. Hex. Socket
1408	"	1413	"
1409	"	1414	"
1419	"	1415	"
1410	"	1432	"
1421	"	653	Flex 15" Handle
1411	"	655	Cross Bar

No. 1400 Set in Steel Box.....Net **$21.15**

No. 83 Hy-Duty Set

3/4" Square Drive



Great strength, combined with refinement of design, feature the handles and sockets of this set. Each socket is designed to give strength and dependability and at the same time retain the advantages of a thin socket. A very efficient set for heavy work. Contained in a strong steel box.

The following sockets and handles are included:

No.	Description	No.	Description
90	Dbl. Hex. Sock.	103	Double Hex. Socket
91	"	104	"
92	"	106	"
93	"	86	Sliding Tee Handle 17–1/2"
94	"	87	Forged Extension 15–1/2"
95	"	88	Forged Extension 8"
96	"	89	3/4" Sq. Connector
97	"	98	19" Ratchet
102	"		

No. 83 Set in Steel Box.....Net **$73.65**
No. 83 Set without Box.....Net **68.25**

No. 81 Hy-Duty Set

3/4" Square Drive

This new Hy-Duty Set has been designed for the user who needs heavy duty tools, with a minimum outlay. The box is the same as used in the No. 83 Set, and extra sockets and the No. 98 Ratchet can be added as required.

The following sockets and handles are included:

No.	Description	No.	Description
90	Dbl. Hex. Sock.	96	Double Hex. Socket
91	"	97	"
92	"	86	Sliding Tee 17–1/2" long
93	"	87	Forged Exten. 15–1/2" long
94	"	88	Forged Exten. 8" long
95	"		

No. 81 Set in Steel Box.....Net **$36.60**
No. 81 Set without Box.....Net **31.20**

Gray-Bonney Box Wrenches

Heavy Duty Box Wrenches

To answer the demand for a line of "power tools" this line of Box Wrenches will give sufficient leverage to break loose the most difficult nut or stud. They are especially designed for Diesel engines, locomotives, tractors and road machinery. Three types of offset heads are available and all have double hexagon openings. Drop forged from alloy steel.

15° Angle Head

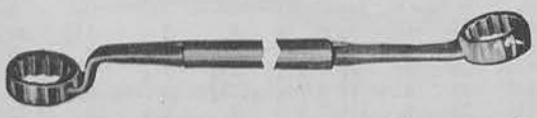
Straight Head

SPECIFICATIONS

Size Opening	Straight		15° Offset		Double Offset	
	No.	List	No.	List	No.	List
1-1/4"	MS40	$3.45	MA40	$3.75	MO40	$4.20
1-5/16"	MS42	4.35	MA42	4.80	MO42	4.80
1-3/8"	MS44	5.40	MA44	5.55	MO44	6.45
1-7/16"	MS46	5.40	MA46	5.55	MO46	6.45
1-1/2"	MS48	6.15	MA48	6.45	MO48	6.90
1-5/8"	MS52	6.90	MA52	7.05	MO52	8.25
1-11/16"	MS54	6.90	MA54	7.20	MO54	8.40
1-3/4"	MS56	7.05	MA56	7.35	MO56	8.55
1-13/16"	MS58	7.20	MA58	7.50	MO58	9.00
1-7/8"	MS60	8.70	MA60	9.00	MO60	10.35
2"	MS64	8.70	MA64	9.00	MO64	10.35
2-1/16"	MS66	9.00	MA66	9.30	MO66	10.50
2-3/16"	MS70	9.75	MA70	10.35	MO70	11.40
2-1/4"	MS72	10.50	MA72	11.00	MO72	12.15

Prices for larger sizes given on application.

Tubular Handles For Box Wrenches



Specially designed tubular steel handles are available for use with Heavy Duty Box Wrenches. Made from selected seamless tube, these handles will give ample leverage for the largest wrench. A special locking device secures the wrench in the handle and prevents turning. Two sizes cover all wrenches and up to and including 1-1/2", handle No. M28 is used. Larger sizes take No. M32 handle.

Handle No.	Length	Inside Dia.	Outside Dia.	List
M-28	24"	7/8"	1-1/8"	$4.20
M-32	30"	1"	1-1/4"	6.00

MS14 Set—14 Straight type wrenches with two tubular handles..... List $109.65

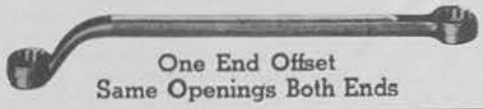
MA14 Set—14-15° Angle type wrenches with two tubular handles..... List $114.00

MO14 Set—14 Double Offset type wrenches with two tubular handles..... List $128.15

Box Wrenches

Box Wrenches having one end straight and one end offset have long been favored by the mechanic "who likes the right tool for the job." For work on manifolds and for the hard-to-get-at nuts at the rear of motor blocks they are invaluable. Gray Box Wrenches are available in convenient sets, shown opposite.

Chrome Vanadium — Long Type



One End Offset
Same Openings Both Ends

No.	Double Hex. Openings	Length	List Price
2316	1/2"	9"	$1.80
2318	9/16"	9-1/2"	1.95
2320	5/8"	10"	2.10
2322	11/16"	11"	2.10
2324	3/4"	11-1/2"	2.40
2326	13/16"	12"	2.55
2328	7/8"	12-3/4"	2.85

Chrome Vanadium — Short Type

Both Ends Offset
Different Opening in Each End

The advantage of Short Box Wrenches for use in close places, and on generators and starters, is known to all mechanics. Gray Short Box Wrenches have different openings at each end, with sufficient offset to clear obstructions.

No.	Double Hexagon Openings	Length	List Price
2384	3/8" & 7/16"	5-1/8"	$1.50
2386	1/2" & 9/16"	5-1/2"	1.65
2387	9/16" & 5/8"	5-3/4"	1.80
2388	5/8" & 3/4"	8-1/2"	2.25

Long Type Double Offset

Different Opening in Each End

This type of wrench, with different openings at each end, has been designed for heavy duty and industrial work. These wrenches are forged from Chrome Vanadium steel and carefully heat treated to give the power so necessary in a wrench of this kind.

No.	Double Hexagon Openings	Length	List Price
2811E	7/8" & 1-1/16"	14-1/2"	$4.20
2811B	15/16" & 1-1/16"	14-1/2"	4.20
2811C	15/16" & 1-1/8"	14-1/2"	4.20
2811A	1" & 1-1/16"	14-1/2"	4.20
2811	1" & 1-1/8"	14-1/2"	4.20
2812B	1-1/16" & 1-1/4"	16-1/2"	5.25
2812D	1-1/16" & 1-1/8"	16-1/2"	5.25
2812C	1-1/8" & 1-1/4"	16-1/2"	5.25
2812	1-1/4" & 1-3/8"	16-1/2"	5.25
2812A	1-1/4" & 1-7/16"	16-1/2"	5.25

Gray-Bonney

Adjustable Wrenches

For use around automobiles, gas or gasoline engines, motor boats, machine shops, and in fact any place where a wrench is required that will take various sized nuts.

Single End

Quantity in Box	Number and Size, Inches	Jaws Open, Inches	List Prices, Each Semi-finished
6	4	1/2	$0.90
6	6	3/4	.90
6	8	5/16	1.10
6	10	1–1/8	1.40
6	12	1–5/16	2.10

Westcott Adjustable S Nut Wrenches

A convenient wrench for general use. Can be used in many places inaccessible to the monkey wrench.

No.	76	78	80	82	84
Per Dozen	$8.00	10.00	12.00	18.00	24.00
Size...in.	6	8	10	12	14
Opens...in.	3/4	1	1 3/8	1 5/8	2
Wt. per Box...lbs.	2 1/8	5 1/2	9 3/4	16 1/2	25 1/2

Gray-Bonney

Adjustable S Nut Wrenches

Made of a special analysis carbon tool steel, hardened and toughened by special heat-treating process.

Quantity in Box	Size, Extreme Length, Inches	Jaws, Open, Inches	List Price, Each
6	6	3/4	$1.00
6	8	1	1.20
6	10	1–3/8	1.40
6	12	1–5/8	2.10
6	14	2	2.80

Gray-Bonney

Machinists' Knife Handle Wrenches

Fitted with easy-acting solid steel screw. Each wrench is wrapped in anti-rust paper.

Quantity in Box	No. and Overall Length, Inches	Capacity, Inches	List Price, Each
6	6	1	$1.20
6	8	1–1/2	1.50
6	10	1–7/8	1.80
6	12	2–1/4	2.30
6	15	2–13/16	3.10
6	18	3	4.00
6	21	3–15/16	5.50

Armstrong Standard Reversible Ratchet Drills

Sleeve Ratchets With Square Taper Sockets

By means of different sockets this drill can be adapted to use of blacksmiths' drills with round shank.

No.	Lgth In.	Square Taper No.	Size Drill Socket Ends, In. Small	Large	Lgth. Head In.	Feed In.	Wt. Lbs.	Price Each
9	9	*	..	..	5	2	1 3/4	$7.25
12	12	1	3/8	5/8	6	2 1/4	4	7.50
15	15	1	3/8	5/8	6 3/4	2 1/2	6 1/4	8.75
18	18	1	3/8	5/8	7 3/4	3	9 1/2	10.00
22	22	2	1/2	3/4	9	3 1/2	13 1/2	11.50

*Standard bit stock taper.

Armstrong Standard Reversible Ratchet Drills

Boiler Ratchets with Square Taper Sockets

By means of different sockets this drill can be adapted to use of blacksmiths' drills with round shank.

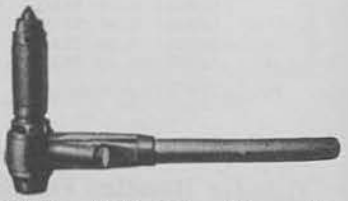
No.	Lgth. In.	Square Taper No.	Size Drill Socket Ends, In. Small	Large	Lgth. Head In.	Feed In.	Wt. Lbs.	Price Each
9B	9	*	..	..	3 1/4	1 1/8	1 1/2	$6.75
12B	12	1	3/8	5/8	4 3/8	1 1/2	3 1/2	7.25
15B	15	1	3/8	5/8	5	1 3/4	5 1/2	8.25
18B	18	1	3/8	5/8	5 1/2	2	8	9.75
22B	22	2	1/2	3/4	6	2 1/4	11 1/2	11.25

*Standard bit stock taper.

Armstrong Standard Reversible Ratchet Drills

With Morse Taper Sockets

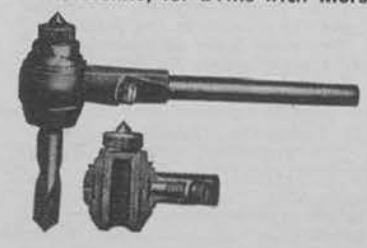
By means of sleeves and sockets, ratchets can be made to take smaller size drills, square taper and blacksmiths' shank drills.



No.	Lgth. In.	Morse Taper No.	Takes Morse Taper Drills In.	Length Head, In.	Feed In.	Wt. Lbs.	Price Each
9M	9	1	1/16 to 9/16	5	2	1 3/4	$7.50
12M	12	2	1/4 " 3/8	6	2 1/4	4	8.00
15M	15	3	1/2 " 1 1/4	6 3/4	2 1/2	6 1/4	9.00
18M	18	3	1/2 " 1 1/4	7 3/4	3	9 1/4	10.50
22M	22	4	1 1/4 " 2	9	3 1/2	13	12.00

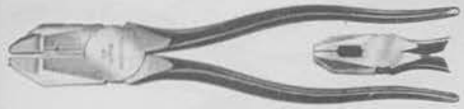
Armstrong Short Ratchet Drills

Reversible, for Drills with Morse Taper Shanks



By means of sleeve and socket, spindle can be made to take smaller size drills, square taper and blacksmiths' shank drills.

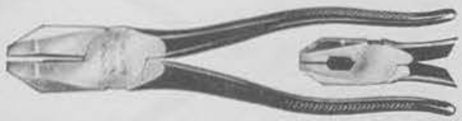
No.	Lgth. In.	Morse Taper No.	Lgth. Head In.	Feed In.	Wt. Lbs.	Price Each
62R	12	3	3 3/4	2 1/2	6 3/4	$12.00
63R	18	3	3 3/4	2 1/2	9	15.00



No. 58 • Utica Lineman's Special Alloy Steel Side Cutting Plier

A heavy duty Lineman's Side Cutting Plier in the popular shape, designed to give the proper "hang." Hand-honed cutting knives and milled throat make an easy cutting well-balanced tool.

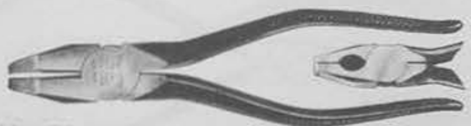
Utica Finish Size	6"	7"	8"
Weight doz., lbs	5¾	9¼	13¼



No. 1950 • Utica Lineman's Heavy Side Cutting Plier

Standard Side Cutting Plier of popular design, drop forged from Alloy Steel. A high quality tool for inside or outside work.

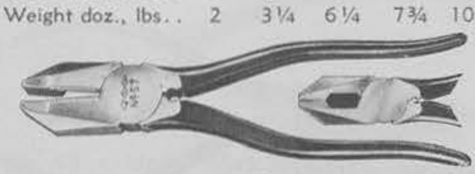
Utica Finish Size	6"	7"	8"	9"
Weight doz., lbs	5¾	9¼	13½	15½



No. 50 • Utica Standard Side Cutting Plier

An ideal tool for electrical construction work. Lighter in weight than the Lineman's Side Cutting Plier, forged from Alloy Steel and skillfully tempered. Its cutting qualities are unsurpassed by any side cutting plier.

Utica Finish Size	4"	5"	6"	7"	8"
Weight doz., lbs	2	3¼	6¼	7¾	10¼



No. 57 • Utica Combination Lineman's Side Cutting and Splicing Plier

For pole or ground work. Hand-honed cutting knives, milled throat give it the proper balance for cutting and splicing.

Utica Finish Size	6"	7"	8"
Weight doz., lbs	5¾	9¼	13¼

No. 1050 • Utica Competition Side Cutting Plier

This is a well made plier along the line of the No. 50. The handles are smooth instead of knurled and are black instead of blue. It is a good quality plier for persons desiring a serviceable tool at a moderate price.

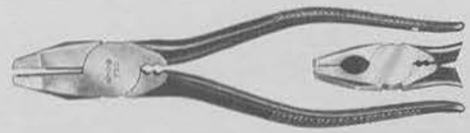
Black Finish, Polished Head,

Size	4"	5"	6"	7"	8"
Weight doz., lbs	2	3¼	6¼	7¾	10¾

No. 3050 • Utica Lineman's Heavy Side Cutting and Splicing Plier

The regular Utica Lineman's Heavy Side Cutting Plier with the Utica Special Splicing Clamp or Sleeve Twister between the handles that will take the regular or combination sleeve without bruising or crushing the wire or the sleeve. This feature does away with the necessity of carrying an extra tool for splicing and tying. Drop forged from special Alloy Steel.

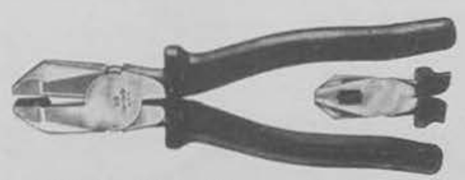
Utica Finish Size	6"	7"	8"	9"
Weight doz., lbs	6	9¼	13¼	15½



No. 350 • Utica Standard Side Cutting and Splicing Plier

This is the Utica Standard Side Cutting Plier with Splicing Clamp or Sleeve Twister between the handles. Sharp hand-honed cutting knives, sleeve twister designed to handle splicing without crushing. It does away with the necessity of carrying an extra tool for tying and splicing.

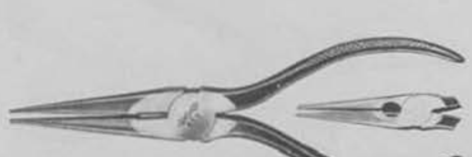
Utica Finish Size	5"	6"	7"	8"
Weight doz., lbs	3¼	6¼	7¾	10¾



No. 3950 • Utica Lineman's Heavy Side Cutting Plier with Insulated Handles for High Voltage

This is the Utica No. 1950 with two layers of pure rubber vulcanized to the plier by people who specialize in this work. This double layer of rubber will stand dropping without fracturing the insulation. The hump prevents the current jumping across to the hand.

Utica Finish Size	6"	7"	8"	9"
Weight doz., lbs	6	9½	14	16¼



No. 655 • Utica Long Needle Nose Side Cutting Plier

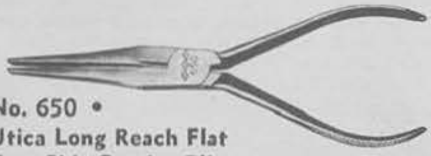
This is a long fine spring-tempered nose side cutting plier, drop forged from Alloy Steel with hand-honed cutting knives.

Utica Finish Size	5½"	6"	7"
Weight doz., lbs	3	4	5

No. 1033 • Utica Long Chain Needle Nose Plier

This is a long needle nose type of plier without a side cutter. It has a spring-tempered needle nose with a fine balance for delicate work.

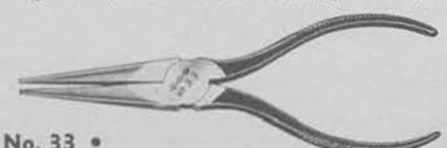
Utica Finish Size	5½"	6"	7"
Weight doz., lbs	3	3½	5



No. 650 •
Utica Long Reach Flat Nose Side Cutting Plier

This is drop forged from Alloy Steel. Long Flat Nose Side Cutting plier, spring-tempered nose, hand-honed cutting knives.

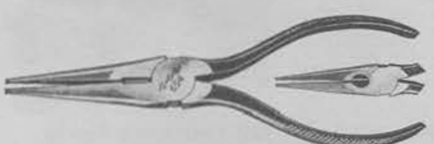
Utica Finish Size	5½"	6"
Weight doz., lbs	3½	4



No. 33 •
Utica Long Chain Nose Plier

This is the heavier nose type of No. 1033. The same spring-tempered nose for persons desiring a plier with heavier point construction than the needle nose.

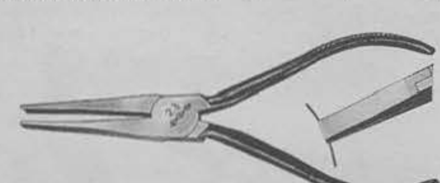
Utica Finish Size	5½"	6"	7"
Weight doz., lbs	3¼	3¾	5



No. 654 • Utica Long Chain Nose Side Cutting Plier

This plier is similar in design and usefulness to the No. 655, except the nose is of heavier design for persons not desiring the Needle Nose.

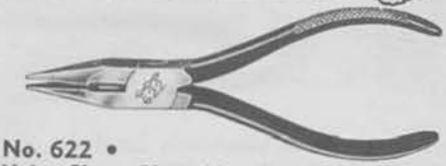
Utica Finish Size	5½"	6"	7"
Weight doz., lbs	3	4	5



No. 23 • Utica Concave and Convex Nose Weaver's Plier

This concave and convex nose enables the operator to straighten reeds without twisting the hand. The bent reed is placed between the spring-tempered concave and convex jaws and by pressing the jaws firmly together the reed is straightened.

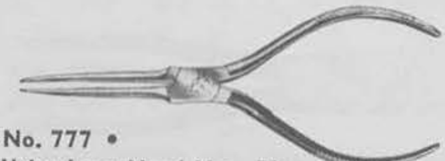
Utica Finish Size	5½"	6"
Weight doz., lbs	3	3½



No. 622 •
Utica Short Chain Nose Mechanic's Plier

This plier is a Short Chain Nose Side Cutting Plier, hand-honed cutting knives. It makes an all round Mechanic's plier.

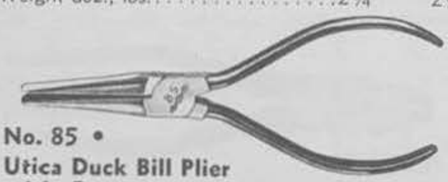
Utica Finish Size	5"
Weight doz., lbs	2¾



No. 777 •
Utica Long Need Nose Plier

This plier has a long, half-round, spring-tempered nose for very fine work in assembling small electrical apparatus, and removing nails, tacks and glass from tires.

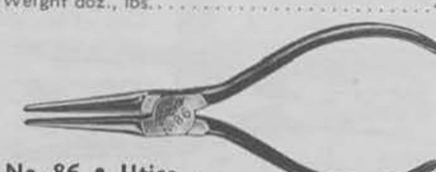
Utica Finish Size	5½"	6"
Weight doz., lbs	2¼	2½



No. 85 •
Utica Duck Bill Plier with Concave and Convex Jaws

This plier is a very great improvement over the old style Weaver's or Knitter's Plier in that it enables one to straighten the reeds without twisting or cramping the hand. A very thin nose for straightening fine reeds and needles.

Utica Finish Size	5½"
Weight doz., lbs	4¾



No. 86 • Utica
Duck Bill Plier with Flat Jaw

A long, slender, spring-tempered Nose. In the 5½" size for Jewelers, Opticians, Loomfixers, Weavers and Knitters and in the larger sizes heavier type nose for use by Motor Winders and Radiator Repair Men.

Utica Finish Size	5½"	6"	8"
Weight doz., lbs	4¾	5	7

No. 3400 • Utica Extra Long Chain Nose Alloy Steel Plier

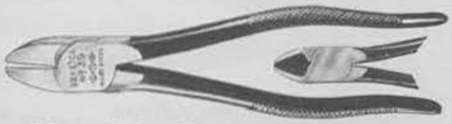
Particularly adapted for the use of Telephone, Radio, Typewriter Repair Men and Automobile Mechanics. It has a long spring-tempered nose with "Perfect Fit" handles.

Utica Finish Size	6½"
Weight doz., lbs	4

No. 21 • Utica Round Nose Plier

A Short Round Nose Plier of fine quality, carefully tempered. Used by Radio Repair Men, Jewelers, Opticians and for various kinds of work where a high quality Round Nose Plier is required.

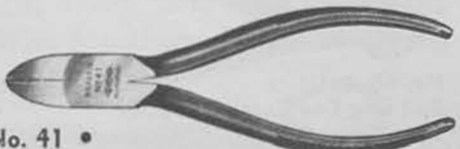
Utica Finish Size...	4"	4½"	5"	5½"	6"
Weight doz., lbs...	1½	2	2¾	3¼	4½



No. 39 • Utica Mechanic's Alloy Steel Diagonal Cutting Plier

Drop forged from the finest Alloy Steel. Hand-honed cutting knives that will cut clean and stand up. Designed to give great leverage in cutting as well as pulling Cotter Keys.

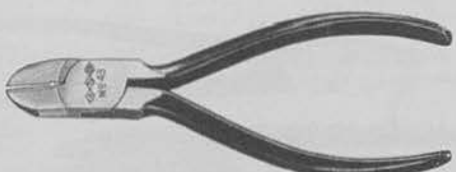
Utica Finish Size..............	7"
Weight doz., lbs..............	8¼



No. 41 •
Utica Alloy Steel Diagonal Cutting Plier

Properly designed all round Diagonal Cutting Plier with hand-honed cutting knives.

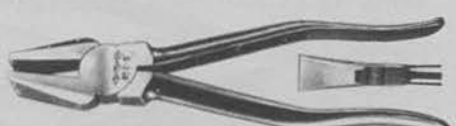
Utica Finish Size..	4"	5"	5½"	6"
Weight doz., lbs..	2	3¼	4½	5¾



No. 43 • Utica Wire Stripping Diagonal Plier

This is the No. 41 plier with the wire stripping notch in the cutting blades. This stripping notch can be furnished for various gauges of wire.

Utica Finish Size..................	5½"	6"
Weight doz., lbs..................	3¼	4½



No. 2 • Utica Wide Jaw Glass Plier

A new high grade Glass Plier with jaws that open just right and will grasp the glass firmly and evenly the full width of the jaw. The handles fit the hand in its natural grasping position. The jaws are seven-eighths of an inch wide.

Utica Finish Size	8"
Weight doz., lbs...............	10½

No. 10C • Utica Thin Nose Slip Joint Plier

A high quality, knurled handle, Slip Joint Plier with a polished nose. These pliers are forged from a high grade of steel, carefully heat-treated and tempered.

Utica Finish Only Size............	6"
Weight doz., lbs................	6

No. 1000 • Utica Giant Button's Plier

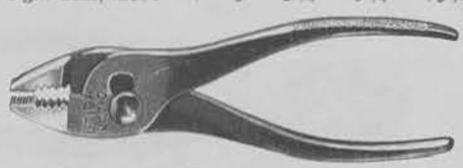
A high quality Buttons Plier with four wire cutters. The cutters between the jaws are so designed that when it is cut, one end is held firmly between the jaws, which feature adds to the utility of the tool and the advantage of cutting the wire with less trouble is evident.

Utica Finish Size.......	6"	8"	10"
Weight doz., lbs........	6¾	10½	17¾

No. 1300 • Utica Gas and Burner Plier

This plier is designed to meet the ever increasing demand for a quality Gas and Burner Plier, with full fashioned handles. This plier has a larger capacity than the ordinary plier of this type.

Utica Finish Size..	5"	6"	7"	8"	10"
Weight doz., lbs..	4	5	6¾	9¾	15¼



No. 7C • Utica Combination Plier

A high quality Slip Joint Plier furnished in the 7C-6" in the Utica Finish and in the Tumbled Nickel Finish—all sizes. A high quality plier in the popular finishes.

Sizes	5"	6"	8"	10"
Weight doz., lbs.......	4½	6	7¼	12¼

No. 511 • Utica Heavy Duty Slip Joint Combination Plier

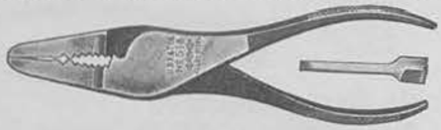
A heavy duty plier designed for work that the ordinary plier will not stand. The cutting knives pass at an angle and will give a clean cut. Made in Utica Finish and Full Nickel Plate.

Size	6"	8"	10"
Weight doz., lbs........	5½	8½	13¼

No. 512 • Utica Heavy Duty Bent Nose Slip Joint Plier

A heavy duty plier bent at an angle that enables the mechanic to get in and work in places inaccessible with any other tool. An ideal tool for plumbers in removing trap connections. Made in Utica Finish Only.

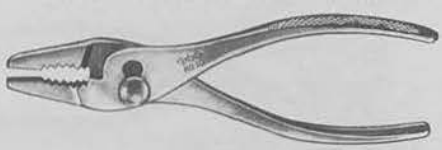
Size	8"	10"
Weight doz., lbs.	8½	3¼



No. 518 • Utica Mechanic's Long Thin Nose Slip Joint Plier

A special extra long thin nose Mechanic's Plier for the hard-to-get-at places. Drop forged from Alloy Steel, heat treated and tempered in oil.

Size	7"
Weight doz., lbs.	7



No. 10 • Utica Thin Nose Slip Joint Plier

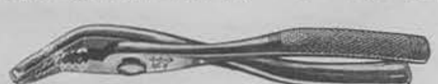
This is the standard type, thin nose plier of bolt and nut construction, forged from a fine grade of steel and finished in Full Nickel Plated only.

Size	5"	6"
Weight doz., lbs.	3¼	5¼

No. 8 • Utica Slip Joint Plier

This is the standard type of Slip Joint Plier. Drop forged from a fine grade of steel. Finished in Full Nickel Plate only.

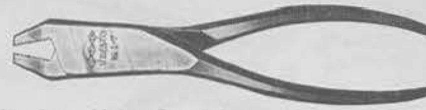
Size	5"	6"	8"	10"
Weight doz., lbs.	4½	6	7¼	12¼



No. 9 • Utica Thin Bent Nose Slip Joint Plier

Note heavy well-shaped handles made to fit the hand so that great pressure can be exerted when the plier is open. Drop forged from high grade of steel. Finished in Full Nickel Plated only.

Size	6½"
Weight doz., lbs.	5¼



No. 1 • Utica Straight Nose Battery Plier

The original Battery Plier known the world over. It is not only a Battery Plier but an all round Automobile Mechanic's tool.

Size	7"
Weight doz., lbs.	7¼

No. 524 • Utica Angle Nose Battery Plier

This is a competitive Angle Nose Battery Plier, polished head, smooth handles, well finished.

Size	7"
Weight doz., lbs.	5¾

No. 60 • Utica Bull Dog End Cutting Nipper

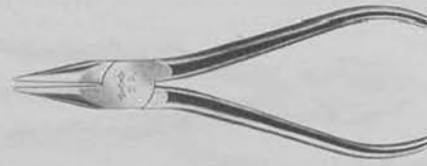
This Nipper is forged from a fine grade of Alloy Steel, carefully tempered, and is a strong, easy cutting tool. Used by the body builders, fender repair men and other mechanics who require a high quality End Cutting Nipper that will hold its edge. The handles are checkered, making an ideal gripping surface.

Utica Finish Size	5"	6"	7"	8"
Weight doz., lbs.	5¾	7¾	9	12½

No. 300 • Utica Competition Button's Plier

This plier is designed to meet the demand for a popular priced quality Button's Plier. It has two wire cutters, furnished with smooth handles and a good burner grip.

Utica Finish Size	4½"	6"	8"	10"
Weight doz., lbs.	4	6½	10¾	16½



No. 22 • Utica Chain Nose Plier

This is a Short Chain Nose Plier forged from a fine quality of steel with fine points particularly adapted for the use of Jewelers, Opticians, Telephone Installers, Electricians and Radio Assemblers.

Utica Finish Size	4"	4½"	5"	5½"	6"
Weight doz., lbs.	1½	2	2¾	3¼	4½

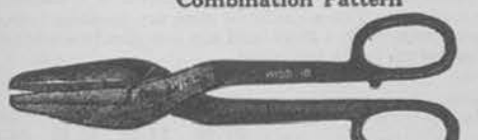
Wiss Steelforged Tinners' Snips
Regular Pattern

No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each	No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each
13	7	2	⅛	$1.90	9	12½	3	2	$3.65
12	8	2	½	2.25	8	13¾	3½	2½	4.35
11	9½	2¼	¾	2.60	7	14½	4	3	5.10
10	11½	2½	1½	3.40	6½	15¾	4½	3⅞	5.80

Wiss Steelforged Tinners' Snips
Circular Blade Pattern

No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each	No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each
11CB	9½	2¼	¾	$4.00	8CB	13¾	3½	2½	6.40
10CB	11½	2½	1½	5.10	7CB	14½	4	3	7.55
9CB	12½	3	2	5.60	6½CB	15¾	4½	3⅞	8.55

Wiss Steelforged Tinners' Snips
Combination Pattern



Will cut curved as well as straight work.

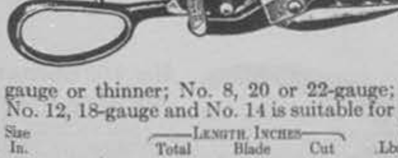
No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each	No.	Full Length Inches	Length of Cut Inches	Weight Pounds	Each
100	11½	2½	1⅜	3.65	18	13½	3½	2⅜	4.80
19	12½	3	1⅞	4.00	17	14½	4	2⅞	5.50

Wiss Steelforged Tinners' Snips
Reverse Blade Pattern

Handles fit either right or left hand.

No	Full Length Inches	Length of Cut Inches	Weight Pounds	Each
9R	12½	3	2	$4.15
Reverse Blade Pattern				
19R	12½	3	1¾	$4.35

Bartlett Compound Lever Snips
Searight Patent



Made from drop-forged crucible tool steel and have great cutting strength.

No. 7 will easily cut 24-gauge or thinner; No. 8, 20 or 22-gauge; No. 10, 20-gauge; No. 12, 18-gauge and No. 14 is suitable for heavy bench work.

Size In.		Length, Inches Total	Blade	Cut	Weight Lbs.	Oz.	Price Each
7	Stamped	7	1½	1¼	..	5	$3.80
8	Forged	8	2.	1¾	..	10	5.80
10	"	10½	3	2½	1	2½	7.60
12	"	12	3½	3	1	14	10.00
14	"	14	4¼	3½	2	9	11.50

Wiss 9X Scroll-Pivoter Snips

The pivoting principle of this snip enables it to cut intricate shapes with ease. Will cut ordinary galvanized sheets up to 18 gage and monel metal sheets of average thickness.

The blades lie flat exactly opposite from the ordinary cutting blade.

Length, 12 inches. Finished in dull grey nickel. Rust resisting.

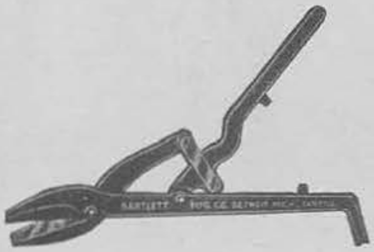
Packed 1 in a box; weight, 1¾ pounds.

Each........................ $4.95

No. 30 Bartlett Bench Shears
Searight Patent

This tool is made with the patented compound lever principle and of well designed malleable iron castings with all parts interchangeable.

Will cut 12 gauge steel and the arrangement of the jaws allows a full sheet to handle to advantage.



No.	Length, Inches Over All	Blade	Cut	Ship. Wt. Pounds	Price Each
30	33	8	4½	23	$34.20

Pexto Tinners' Bench Shears

Has black handles and polished heads.
Has right hand cut with lower blade on right side.

No.	Each	Cuts Iron No.	Length Cut Inches	Length Over All Inches
1	$24.50	18	9	39
4	18.00	20	7⅜	30
6	14.00	22	5¼	25
Elbow 31	16.00	18	4	26
Elbow 32	29.30	16	6	39

No. 56 Pexto Forged Steel Rivet Sets

Black finish.

No.	Each	Size Hole In.	Drill Gauge No.	For Iron Rivets Lbs.	For Copper Rivets No.	Diam. In.	Wt. Lbs. per Doz.
00	$.84	5/16	5/16	14	....	..	10½
0	.84	9/32	9/32	10 and 12	5	¼	10½
1	.80	15/64	15/64	7 and 8	6	7/32	6¾
2	.80	.2130	3	6	7	3/16	6¾
3	.70	.1910	11	4 and 5	8	5/32	5
4	.70	.1660	19	2½ and 3	9	9/64	5
5	.48	.1495	25	1¾ and 2	10 and 11	⅛	5
6	.48	.1405	28	1½	12	7/64	2¾
7	.44	.1285	30	1¼	13	3/32	2¾
8	.44	.1100	35	10 and 12 oz.	14	3/32	2¾

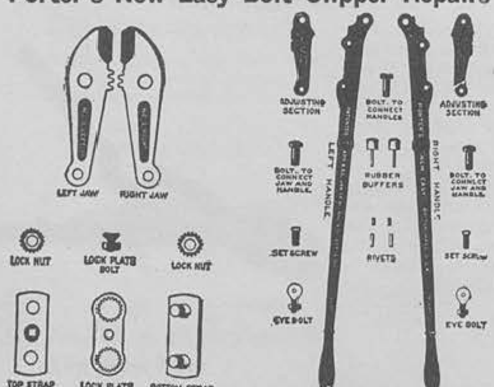
Porter's New Easy Bolt Clippers

The handles are of japanned malleable iron, tough and strong; the buffers are rubber; the jaws are tool steel, of a temper shown by long experience to be the best for cutting annealed bolts and rivets. The jaws can be dressed when necessary with a mill file.

No.	0	1	2	3
For Bolts.............inches	5/16	3/8	1/2	5/8
Length.............. "	18	24½	30	36
Weight.............pounds	3	5¾	9	13
Price..................each	$5.50	7.00	11.25	15.50

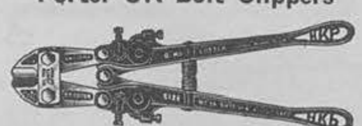
Nos. 0 and 1 have open handle grips. Nos. 2 and 3 have solid grips, adjusted by set screw. No special wrench or shims required.

Porter's New Easy Bolt Clipper Repairs



Parts of Head   Parts of Handle

Porter OK Bolt Clippers



Supplied with either of 2 types of jaws: Clipper cut jaws for trimming bolts and rivets, and center cut jaws in which the bevels are equal and the cutting edge in center of thickness of jaws. Ample adjustment provided to take up wear.

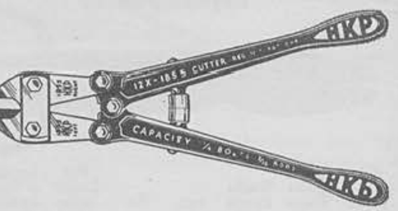
No.	10-OK	14-OK
Bolt Clipper...........each	$2.75	$3.00
Extra Jaws...........per pair	1.45	1.65
Approximate Length...........in.	10	14
Capacity Annealed Bolts in Thread.....in.	3/16	1/4
Capacity Soft Rods...........in.	1/8	3/16
Capacity Spring Wire (Spec. Temper Jaws)...........in.	109	165
Approximate Weight...........lbs.	1½	2¼

Drawing Knives

Has razor blade. Packed six in a box.

Size Inches	Price per Doz.
8	$13.50
9	14.40
10	15.60

No. 12X-1855 Porter Bolt Clippers



Normal capacity up to ¼-inch annealed bolts in the thread, 3/16 inch soft rods. Is capable of small adjustment by means of filing away stops between handles as necessary. Stops have rubber buffers.

No.	Per Dozen	Jaws Per Pair	Length Tool Inches	Approximate Weight Pounds
12X	$36.00	$1.60	12	1½

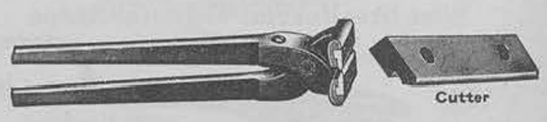
Carews Patent Wire Cutters

Drop-Forged

The advantage of this cutter over others now in use can be seen at a glance. The adjustable jaws are its main feature. These are made of tool steel, and are brought to a keen cutting edge before being tempered.

Length...........inches	8	10	12	14
Each...........	$4.40	$4.85	$5.65	$6.80
Extra Jaws...........per pair	1.30	1.35	1.45	1.55

Todd Cutting Nippers


Cutter

Cutters are made of best tool steel and are interchangeable

Heavy Pattern

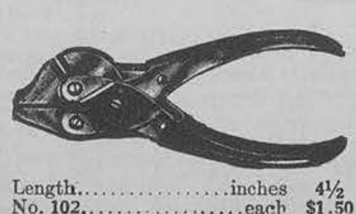
No.	Length In.	Price Each	No.	Length In.	Price Each	No.	Length In.	Price Each
1	12	$3.65	3	10	$2.95	6	6	$2.20
2	11	3.35	4	8	2.50	..	..	....

Extra Heavy Pattern

No.	Length In.	Price Each	No.	Length In.	Price Each	No.	Length In.	Price Each
0	15	$4.95	00	13	$4.50	000	11	$4.10

Cutters

No.	Price per Pair	No.	Price per Pair	No.	Price per Pair	No.	Price per Pair
1	$1.15	3	$1.05	6	$.80	00	$1.30
2	1.05	4	.90	0	1.30	000	1.30



No. 102 Bernard Cutting Pliers

Dual fulcrum construction, parallel jaws, projecting cutters, open throat. Full nickel-plated.

Length...........inches	4½	5½	6½	8
No. 102...........each	$1.50	1.75	2.25	3.25

No. 1 Whitney Punches

This punch has great capacity, is of simple construction, and strongly built.

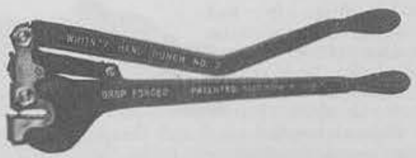
Punches and dies from 1/8 to 9/16 inch, by 64ths.

Insertable pipe handles.

Each punch is equipped with 1 punch and 1 die.

No.	Tool Complete Each	Extra Punches Each	Extra Dies Each	Length Inches	Capacity, In. Hole	Capacity, In. Thickness Iron	Weight Pounds
1	$19.00	$.45	$.45	34	3/8	1/4	22

No. 2 Whitney Punches



This punch gives excellent satisfaction in boiler shops, to furnace manufacturers, cornice, tank and stack builders, manufacturing plants and repair shops. One punch and one die included with each punch as equipment.

Punches and dies from 3/32 to 1/2 inch, by 1/64ths.

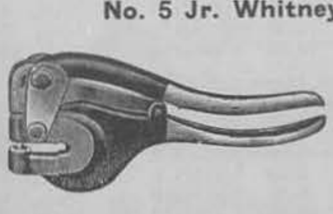
Length	inches	23
Capacity Hole	inches	5/16
Thickness Iron	inches	1/4
Weight	pounds	13
Price, Tool Complete	each	$15.00
Price, Extra Punches	each	.45
Price, Extra Dies	each	.45

Whitney Channel Iron Punches

Punches to center of 4-inch channel iron with 1½-inch flanges. Drop forged. Lower jaw has opening back of die socket that allows channel and angle iron to be inserted through from side and punched in web between flanges.

Length	in.	23
Tool Complete	each	$16.00
Extra Punches (3/32 to 1/2 by 64ths)	each	.45
Extra Dies (3/32 to 1/2 by 64ths)	each	.45
Capacity Hole	in.	1/4
Thickness Iron	in.	1/4
Weight	lbs.	16½

No. 5 Jr. Whitney Punches



Punches and Dies

Set includes 7 punches and dies in a cannot-lose-out fibre container. Sizes furnished are as follows: 3/32, 1/8, 5/32, 3/16, 7/32, 1/4 and 9/32 inch, or any stock sizes specified. Any size punch and die from 1/16 to 9/32 by 1/64 inch can be furnished.

Capacity 1/4 inch through 16 gage. Punches in center of 3 inches. Length over all 8½ inches. Height of gap 1/4 inch.

Weight 2½ pounds per container.

No. 5 Jr., Complete with 7 Punches and Dies....each **$9.17**

No. 24 Whitney Ball-Bearing Punches

Capacity, ½-Inch Hole in ⅜-Inch Iron

Punch body is made of special steel casting.

Tool is shipped with one punch and die. Stock sizes are 3/16 to 5/8 inch by 1/32 inch.

Depth of Throat	inch	3½
Will Punch in Center of	inch	7
Height of Throat	inch	4
Weight	pounds	45
Price, No. 24	each	$60.00

Oswego Boilermakers' Steel Screw Punches

Screw Punch Complete

Punch

Coupling

Die

Body is of high grade electric steel casting, having a tensile strength of 80000 pounds. Parts are carefully machined and fitted. In ordering, specify rivet sizes of punches and dies wanted. Punches are 1/32-inch larger than rivet sizes up to 7/16-inch; 1/2-inch and above, 1/16-inch larger.

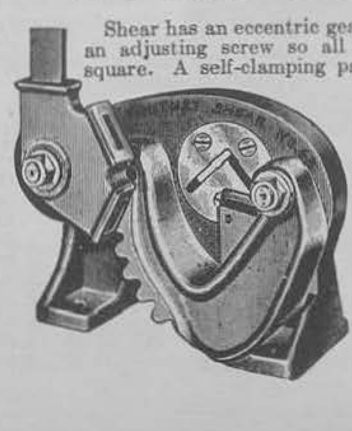
One punch and die furnished with each screw punch.

Screw Punch No.	Punches Hole Inches	Thickness Plate Inches	Distance from Edge Inches	Weight Pounds	Complete Price Each
A or 00	5/16	1/4	1½	13	$20.00
B " 0	1/2	1/4	1½	17	24.00
C " 1	1/2	5/8	1½	25	30.00
D " 2	3/4	1/2	2	41	40.00
E " 3	3/4	3/4	2½	64	60.00
F " 3½	3/4	3/4	3½	78	75.00
G " 4	3/4	3/4	4	92	80.00

Repair Parts

Screw Punch No.	Price, Each Body	Screw	Coupling	Punch	Die	Set Screw
A or 00	$12.00	$12.50	$2.00	$2.10	$1.40	$.50
B " 0	16.00	12.50	2.00	2.10	1.40	.50
C " 1	20.00	15.00	2.50	2.40	1.60	.60
D " 2	25.00	15.00	2.50	2.40	1.60	.60
E " 3	30.00	20.00	3.00	3.00	2.00	.75
F " 3½	50.00	20.00	3.00	3.00	2.00	.75
G " 4	60.00	20.00	3.00	3.00	2.00	.75

No. 62 Whitney Angle Iron Shears



Shear has an eccentric gear; also provided with an adjusting screw so all angles can be cut off square. A self-clamping pad is used for holding angles in position and a flat bar handle. All parts are made in drill jigs and fixtures, so they are interchangeable; wearing parts hardened throughout; inserted tool steel blades. Capacity, 3x3x1/4 in. angle iron. Weight, 154 pounds.

No. 62...each **$130.00**

Armstrong Tool Holders

Straight Shank

Armstrong Tools form a practical and economical system for the use of self-hardening and high speed steel.

One Armstrong Tool Holder with a few cutters will do any job on the lathe or shaper; roughing, facing, finishing, corner and fillet work.

Left-Hand, Offset

They save all forging and 70 per cent of grinding.

Right-Hand, Offset

Cutters made from stock size and shape of steel.

Armstrong Tools make 1 pound of high speed steel equal 10 pounds of ordinary forged tools. Price includes wrench and one high speed cutter bit.

No. Left-Hand	No. Straight Shank	No. Right-Hand	Size Holder Inches	Size Cutter In. Sq.	Price Each	Price, Extra Cutter Bits, High Speed, Each
000-L	000-S	000-R	5/16 x 1/2 x 4	3/16	$2.70	$.15
00-L	00-S	00-R	5/16 x 3/4 x 4 1/2	3/16	2.70	.15
0-L	0-S	0-R	3/8 x 7/8 x 5	1/4	2.85	.20
1-L	1-S	1-R	1/2 x 1 1/8 x 6	5/16	3.25	.35
2-L	2-S	2-R	5/8 x 1 3/8 x 7	3/8	4.00	.55
3-L	3-S	3-R	3/4 x 1 5/8 x 8	7/16	5.40	.90
4-L	4-S	4-R	7/8 x 1 3/4 x 9	1/2	6.90	1.30
5-L	5-S	5-R	1 x2 x11	5/8	9.75	2.35
6-L	6-S	6-R	1 1/4 x2 1/4 x13	3/4	13.50	3.85
7-L	7-S	7-R	1 1/2 x2 1/2 x16	7/8	22.50	5.85
750-L	750-S	750-R	1 5/8 x2 3/4 x18	1	33.00	8.35
800-L	800-S	800-R	1 3/4 x3 x20	1 1/8	42.75	11.35

Armstrong Drop-Head Tool Holders

Straight Shank

Designed especially for use on lathes of British and European make, and American lathes of similar design with high slide rest or low centers.

The head and screw are extra heavy and the gooseneck shape of holder makes it an excellent shaper and planer tool. It is drop forged from a special steel which combines stiffness and strength to a remarkable degree, and is accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point and are practically unbreakable.

Left-Hand, Offset

Right-Hand, Offset

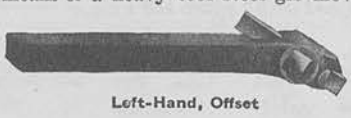
Each tool holder is boxed separately and the price includes one high speed cutter bit.

No. Left-Hand	No. Straight Shank	No. Right-Hand	Size Holder Inches	Size Cutter In. Sq.	Price Each	Price, Extra Cutter Bits, High Speed, Each
100-L	100-S	100-R	1/2 x 5/8 x 6	3/16	$2.70	$.15
101-L	101-S	101-R	5/8 x 3/4 x 7 1/2	1/4	2.85	.20
201-L	201-S	201-R	3/4 x 7/8 x 8 1/2	5/16	3.25	.35
102-L	102-S	102-R	7/8 x 1 x 9 1/2	3/8	4.00	.55
301-L	301-S	301-R	1 x1 1/8 x10 1/2	7/16	5.40	.90
103-L	103-S	103-R	1 1/8 x1 1/4 x11 1/2	1/2	6.90	1.30
104-L	104-S	104-R	1 3/8 x1 1/2 x13 1/2	5/8	9.75	2.35
105-L	105-S	105-R	1 5/8 x1 3/4 x15 1/2	3/4	13.50	3.85
106-L	106-S	106-R	1 7/8 x2 x17 1/2	7/8	22.50	5.85
107-L	107-S	107-R	2 1/8 x2 1/4 x19 1/2	1	33.00	8.35

Armstrong Stellite Tool Holders

This tool holder is designed for the use of Stellite cutters, extra hard high speed steel or any alloy of such nature as to require large clamping surface, which is obtained by means of a heavy tool steel gib movably set between the cutter and screw point. This feature is combined with the usual Armstrong quality of strength and compactness.

Straight Shank



Left-Hand, Offset

Each tool includes wrench and one Stellite cutter.

Stellite is not steel, but a mixture of chromium, cobalt and other semi-rare metals. It is more brittle than high speed steel and therefore should be ground so as to give as much support under the cutting edge as possible.

Right-Hand, Offset

No. Left-Hand	No. Straight Shank	No. Right-Hand	Size Holder Inches	Size Cutter Inches Square	Price Each	Price Extra Cutter Bits, Stellite Each
X0-L	X0-S	X0-R	3/8 x 7/8 x 6	1/4	$5.65	$.70
X1-L	X1-S	X1-R	1/2 x1 1/8 x 7	5/16	6.75	1.20
X2-L	X2-S	X2-R	5/8 x1 3/8 x 8	3/8	8.25	1.90
X3-L	X3-S	X3-R	3/4 x1 5/8 x 9	7/16	11.25	3.00
X4-L	X4-S	X4-R	7/8 x1 3/4 x10	1/2	15.75	4.60
X5-L	X5-S	X5-R	1 x2 x12	5/8	21.75	7.80

Armstrong Carbide Tool Holders

Designed for holding carbide cutter bits.

They are drop forged of special steel and heat treated. The cutter is held parallel with the shank of the tool. High speed steel cutter bits can also be used.

Furnished for holding either square of flat cutter bits.

Price includes wrench but no cutter bit.

Straight Shank

Square Cutter No.	Square Cutter Each	Flat Cutter No.	Flat Cutter Each	Size of Holder Inches	Size of Cutter Inches Square	Size of Cutter Inches Flat	Weight Pounds
T-0-S	$3.20	FT-0-S	$3.80	3/8 x 15/16 x 6	1/4	1/4 x 3/8	1 1/4
T-1-S	3.60	FT-1-S	4.40	1/2 x1 1/4 x 7	5/16	5/16 x 7/16	2
T-2-S	4.50	FT-2-S	5.40	5/8 x1 1/2 x 8	3/8	3/8 x 1/2	3 1/4
T-3-S	6.00	FT-3-S	7.20	3/4 x1 3/4 x 9	7/16	7/16 x 9/16	5
T-4-S	7.60	FT-4-S	9.20	7/8 x1 7/8 x10	1/2	1/2 x 3/4	7
T-5-S	10.80	FT-5-S	12.90	1 x2 1/8 x12	5/8	5/8 x 7/8	10 1/2

Right-Hand Off-Set

T-0-R	$3.20	FT-0-R	$3.80	3/8 x 15/16 x 6	1/4	1/4 x 3/8	1 1/4
T-1-R	3.60	FT-1-R	4.40	1/2 x 1 1/4 x 7	5/16	5/16 x 7/16	2
T-2-R	4.50	FT-2-R	5.40	5/8 x 1 1/2 x 8	3/8	3/8 x 1/2	3 1/4
T-3-R	6.00	FT-3-R	7.20	3/4 x 1 3/4 x 9	7/16	7/16 x 9/16	5
T-4-R	7.60	FT-4-R	9.20	7/8 x 1 7/8 x 10	1/2	1/2 x 3/4	7
T-5-R	10.80	FT-5-R	12.90	1 x2 1/8 x 12	5/8	5/8 x 7/8	10 1/2

Left Hand Off-Set

T-0-L	$3.20	FT-0-L	$3.80	3/8 x 15/16 x 6	1/4	1/4 x 3/8	1 1/4
T-1-L	3.60	FT-1-L	4.40	1/2 x 1 1/4 x 7	5/16	5/16 x 7/16	2
T-2-L	4.50	FT-2-L	5.40	5/8 x 1 1/2 x 8	3/8	3/8 x 1/2	3 1/4
T-3-L	6.00	FT-3-L	7.20	3/4 x 1 3/4 x 9	7/16	7/16 x 9/16	5
T-4-L	7.60	FT-4-L	9.20	7/8 x 1 7/8 x 10	1/2	1/2 x 3/4	7
T-5-L	10.80	FT-5-L	12.90	1 x2 1/8 x 12	5/8	5/8 x 7/8	10 1/2

Armstrong Round Cutter Tool Holders

The convenience and economy of this tool will recommend it wherever a single tool is required to do a large variety of lathe and shaper work.
The cutter is round, and rake and clearance can be altered instantly by rotating the cutter in its socket. The cutter is held solidly by a tapered tool steel key. Price includes one high speed cutter bit.

No.	Size Holder Inches	Size Cutter Inches	Price Each	Price, Extra Cutter Bits, High Speed, Ea.
120	3/8x 3/4x 5	1/4	$2.35	$.15
121	1/2x1 x 6	5/16	2.60	.30
122	5/8x1 1/4x 7	3/8	3.20	.50
123	3/4x1 1/2x 8	7/16	4.20	.75
124	7/8x1 5/8x 9	1/2	5.50	1.00
125	1 x1 3/4x11	5/8	6.85	1.95

Armstrong Cutting-Off Tools

Straight Shank

In no other form of forged lathe tool is the proportionate cost of the maintenance compared with effective work done so great as in the cutting-off tool.

As cutter is adjustable to any desired clearance the greatest possible support is obtainable under all conditions.

Left-Hand, Offset

Right-Hand, Offset

The cutters are beveled on both sides and are held at an angle, giving the side clearance and top rake needed to obtain a clean smooth cut.

Price includes wrench and one high speed cutter.

No. Left-Hand	No. Straight Shank	No. Right-Hand	Each	Extra Cutters High Speed Each	Size Shank Inches	Size Cutter Inches
29-L	19	29-R	$2.85	$.60	5/16x 3/4	3/32x 1/2
30-L	20	30-R	3.00	.65	3/8x 7/8	3/32x 5/8
31-L	21	31-R	3.60	.90	1/2x1 1/8	1/8x 3/4
32-L	22	32-R	4.50	1.30	5/8x1 3/8	1/8x 7/8
33-L	23	33-R	6.00	2.15	3/4x1 5/8	3/16x1
34-L	24	34-R	7.50	2.90	7/8x1 3/4	3/16x1 1/8
35-L	25	35-R	9.75	4.00	1 x2	1/4x1 1/4
36-L	26	36-R	11.65	4.65	1 1/4x2 1/4	1/4x1 3/8

Armstrong Spring Cutting-Off Tools

The goose neck form of this tool gives the cutter a resiliency that takes up any chatter and keeps the work from climbing up on tool. Cutter is beveled on both sides and held at an angle, giving the side clearance and top rake needed to obtain a clean, smooth job. Packed 1 in box. Price includes wrench and 1 high speed cutter.

Size Shank Inches	Size Cutter Inches	Weight Pounds Each	No. Left Hand Offset	No. Straight	No. Right Hand Offset	Tool Complete Each	Extra Cutters Each
3/8x 7/8	3/32x 5/8	3/4	S-30L	S-20	S-30R	$4.50	$.65
1/2x1 1/8	1/8x 3/4	1 1/2	S-31L	S-21	S-31R	5.40	.90
5/8x1 3/8	1/8x 7/8	2 1/4	S-32L	S-22	S-32R	6.75	1.30
3/4x1 5/8	3/16x1	3 1/2	S-33L	S-23	S-33R	9.00	2.15

Armstrong Side Tools

The Armstrong Straight Shank Side Tool will be found exceptionally convenient and efficient.

Left Hand, Straight Shank

Right Hand, Straight Shank

This tool is well adapted for use on the planer and shaper for many classes of work.

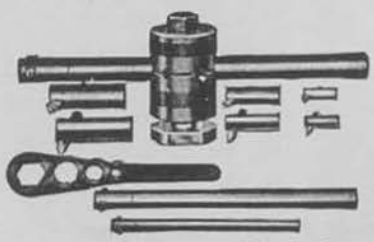
The design embodies the prime needs of a practical lathe tool. As the cutter is adjustable to any desired clearance, the greatest possible support is obtainable under all conditions.

The cutters are beveled on both sides and are held at an angle giving the side clearance and top rake needed to obtain a clean, smooth cut.

Right Hand, Offset

Each of these tools is boxed separately and the price includes a wrench and one high speed cutter.

No. Straight L. H.	No. Straight R. H.	No. Offset L. H.	No. Offset R. H.	Size Shank, In.	Size Cutters, In.	Each	Extra Cutters High Speed, Ea.
79-L	79-R	69-L	69-R	5/16x 3/4	1/8x 1/2	$2.85	$.60
80-L	80-R	70-L	70-R	3/8x 7/8	5/32x 5/8	3.40	.90
81-L	81-R	71-L	71-R	1/2x1 1/8	3/16x 3/4	4.35	1.40
82-L	82-R	72-L	72-R	5/8x1 3/8	1/4x 7/8	6.00	2.30
83-L	83-R	73-L	73-R	3/4x1 5/8	5/16x1	7.85	3.40
84-L	84-R	74-L	74-R	7/8x1 3/4	3/8x1 1/4	10.65	5.00
85-L	85-R	75-L	75-R	1 x2	7/16x1 3/8	12.75	6.00
86-L	86-R	76-L	76-R	1 1/4x2 1/4	1/2x1 1/2	16.50	7.90
87-L	87-R	....	....	1 1/2x2 3/8	9/16x1 5/8	23.65	10.00



Armstrong Three-Bar Boring Tools

Price includes holder, 3 bars with straight, 30 and 45 degree end caps, 9 high speed cutters and combination wrench.
*3/8" bar is solid.

No.	Each	Diam. Bar. In.	Size Cutter, In. Sq.
0-BB	$14.00	*3/8, 1/2 and 3/4	3/16 and 1/4
1-B	22.50	1/2, 3/4 and 1 1/8	3/16, 1/4 and 3/8
2-B	30.00	9/16, 15/16 and 1 5/16	3/16, 5/16 and 7/16
3-B	52.00	3/4, 1 1/8 and 1 1/2	1/4, 3/8 and 1/2
4-B	75.00	15/16, 1 5/16 and 1 13/16	5/16, 7/16 and 5/8

Extra High Speed Cutter Bits

Size.....in. sq.	3/16	1/4	5/16	3/8	7/16	1/2	5/8
Each.....	$.10	.18	.30	.50	.75	1.00	1.80

Armstrong Boring Tool Holders

Reversible and can be used for right or left-hand. Price includes holder, wrench, two boring bars and one cutter.

No.	Size Shank Inches	Size Bar Inches	Size Cutter In. Sq.	Each	Extra Cutter Bits, High Speed, Ea.	Extra Boring Bars Diam. Inches	Extra Boring Bars Each
15	3/8x 3/4	1/8 and 1/4	1/4	$4.15	$.20	1/8	$.30
16	1/2x1	3/16 and 5/16	5/16	5.25	.35	3/16	.40
17	5/8x1 1/4	1/4 and 3/8	3/8	6.75	.55	1/4	.50
18	3/4x1 1/2	5/16 and 7/16	7/16	8.65	.90	5/16	.60
..	.....	.....	..	....	...	3/8	.80
..	.....	.....	..	....	...	7/16	1.10

Armstrong Boring Tools

Each tool is boxed separately.

Price includes holder and bar, 90°, 45° and 30° end caps, 3 high speed cutters and double head wrench.

No.	Complete Each	Extra Cutter Bits 90° Each	Extra Cutter Bits 45° and 30° Each	Size Shank Inches	Diam. Bar Inches	Size Cutter Square Inch	Wt., Lbs.
00B	$4.90	$.10	$.10	5/16 x 3/4	1/2	3/16	1 1/2
8	4.90	.10	.10	3/8 x 7/8	9/16	3/16	1 3/4
9	5.80	.12	.18	1/2 x 1 1/8	3/4	1/4	3 3/4
10	7.65	.24	.30	5/8 x 1 3/8	15/16	5/16	6 1/2
11	10.85	.40	.50	3/4 x 1 5/8	1 1/8	3/8	11
12	16.00	.55	.75	7/8 x 1 3/4	1 5/16	7/16	17
13	22.50	.80	1.00	1 x2	1 1/2	1/2	25

Armstrong Boring Bars

End Cap Pattern
For Use in Armstrong Boring Tools

For boring, facing and internal threading. The end caps lock the cutters rigidly under a tool steel automatic set screw which cannot loosen while the tool is cutting yet instantly releases the cutter for removal. The end caps are interchangeable without removing the bar from holder.

Each bar is boxed separately and price includes bar with 90°, 45°, and 30° end caps, 3 high speed cutters, double head wrench and bushing. In ordering give size of shank or number of tool in which bar is to be used.

No.	Complete Each	Extra Cutter Bits High Speed 90° Each	Extra Cutter Bits High Speed 45° & 30° Each	Dimensions of Bar Diam. In.	Dimensions of Bar Lgth. In.	Size of Cutter Inch Square	With Bushing to Fit Shank No.	Wt. Lbs. Each
0B	$3.00	$.10	$.10	1/2	8	3/16	8, 9 or 10	3/4
08	3.00	.10	.10	9/16	9	3/16	9, 10 or 11	1
09	3.75	.12	.18	3/4	11	1/4	10, 11 or 12	2 1/4
010	5.40	.24	.30	15/16	13	5/16	11, 12 or 13	4 1/2
011	7.50	.40	.50	1 1/8	16	3/8	12 or 13	7
012	10.50	.55	.75	1 5/16	18	7/16	13	11
*013	13.50	.80	1.00	1 1/2	23	1/2	.....	15
*014	19.50	1.40	1.80	1 13/16	28	5/8	.....	23
*015	34.50	2.75	3.40	2 1/4	34	3/4	.....	44

*Without bushing.

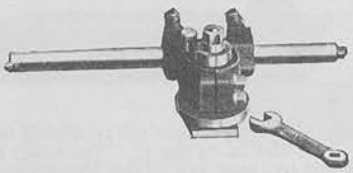
Armstrong Plain Boring Bars

One end is broached at a 90° angle and the opposite end is broached at a 45° angle for square cutters.

Each bar is boxed separately and price includes bar with two high speed cutters, hollow set screw wrench, and bushing. In ordering, be sure to give size of shank (or number of tool) in which bar is to be used. Otherwise, no bushing will be included.

No.	Complete Each	Extra Cutter Bits 90° Each	Extra Cutter Bits 45° Each	Diam. Bar In.	Lgth. Bar In.	Size Cutter Sq. In.	Bushing to Fit Shank No.	Wt. Lbs.
0B-X	$2.40	$.10	$.10	1/2	8	3/16	8, 9 or 10	3/4
08-X	2.40	.10	.10	9/16	9	3/16	9, 10 or 11	1
09-X	2.95	.12	.18	3/4	11	1/4	10, 11 or 12	2 1/4
010-X	4.25	.24	.30	15/16	13	5/16	11, 12 or 13	4 1/2
011-X	6.25	.40	.50	1 1/8	16	3/8	12 or 13	7
012-X	9.00	.55	.75	1 5/16	18	7/16	13	11
013-X	11.75	.80	1.00	1 1/2	23	1/2	.....	15
014-X	17.50	1.40	1.80	1 13/16	28	5/8	.....	23
015-X	31.00	2.75	3.40	2 1/4	34	3/4	.....	44

Armstrong Adjustable Boring Tools



This tool is well adapted to a wide range of work.

The holder is easily adjustable to different heights and will hold bars of various diameters.

Price includes holder, one bar, two high speed cutters and wrench.

No.	Each	Extra Cutter Bits High Sp. Ea.	Capacity Diam. Bar, Inches	Size Bar Inches	Size Cutter In. Sq.
212	$27.00	$.50	1/4 to 1 5/16	1 5/16 x21	3/8
213	37.50	.75	3/8 to 1 1/2	1 1/2 x24	7/16
214	60.00	1.00	1/2 to 1 13/16	1 13/16 x28	1/2
215	90.00	1.80	5/8 to 2 1/4	2 1/4 x36	5/8

Extra charge for fitting bolt head to special dimensions.

Armstrong Planer and Shaper Tools

Cutting Keyway with Cutter Reversed — At Work in Close Quarters

The second illustration shows the tool cutting a keyway with the cutter reversed and the tool turned around, thus allowing the cutting point behind center of tool and working as a gooseneck tool.

The last illustration shows the tool at work in close quarters, giving a good general idea of clearance obtained. It also shows a few of the angles at which cutter can be set.

Prices include wrench and high speed cutter.

No.	Each	Extra Cutter Bits High Speed, Each	Size Holder Inches	Size Cutter Inches
* 40	$4.65	$.35	1/2 x1 x 6	1/4 x 3/8
*401	6.00	.55	5/8 x1 1/4 x 8 1/2	5/16 x 7/16
* 41	7.85	.80	3/4 x1 1/2 x10	3/8 x 1/2
42	12.40	1.95	1 1/8 x1 3/4 x13	1/2 x 3/4
43	21.75	3.35	1 3/8 x2 x16	5/8 x 7/8
44	39.00	5.00	1 7/8 x2 1/4 x19	3/4 x1
45	57.00	8.20	2 1/8 x2 3/4 x22	7/8 x1 1/8

*Shaper sizes.

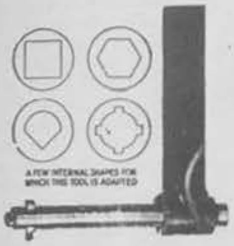
Armstrong Gang Planer Tools

This tool is especially adapted for surfacing large castings, and on this class of work it will effect a saving of 50 to 75 per cent in the time required to do the same job with a single point tool. The tool is solidly secured to the shank, upon which it swivels to a limited degree by means of a deep and closely fitted tongue and socket, and when set its position is fixed by two steel collar screws, while two stop screws render slipping of head impossible.

It is also graduated enabling the tool to be quickly and accurately set to any desired feed. Price includes one set (four) high speed cutters, wrench and grinding gauge.

No.	Size Shank Inches	Lgth. Over All In.	Size Cutter Inches	Feed Adjustment Inches	Price Each	Price, Extra Cutters High Speed Each
61	1 1/4 x1 3/4 x 7 1/2	10	3/8 x1 1/2	0 to 1/4	$26.00	$.85
62	1 5/8 x2 1/4 x 9	12	1/2 x3 3/4	0 to 3/8	44.00	1.70
63	2 x2 1/2 x11	14	5/8 x1 7/8	0 to 1/2	60.00	2.80

Armstrong Extension Shaper Tools

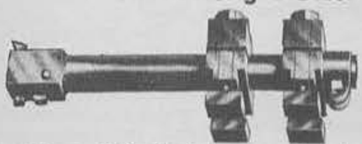


An extremely rigid and convenient tool, well adapted for die work or for any kind of work on the shaper where extra clearance is needed.

Price includes holder and one bar, one high speed cutter and one wrench.

No.	Size Shank Inches	Size Bar Inches	Size Cutter In. Sq.	Price Each	Price, Extra Cutter Bits High Speed, Each
47	1/2x1 1/8	3/4x10	5/16	$4.50	$.24
48	5/8x1 3/8	15/16x12	3/8	5.65	.40
49	3/4x1 5/8	1 1/8x14	7/16	8.00	.55

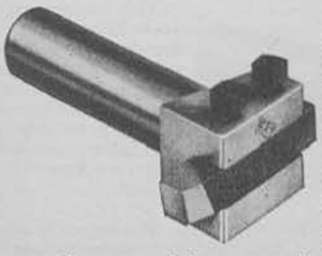
Armstrong Slotter Tools



This tool is easily adjustable to different lengths of stroke, and can be rotated for working into corners or in different positions. Price includes wrench and one high speed cutter. As there is considerable difference in the size of T slots of machines of different manufacture, the clamps and bolt heads of this tool are of ample size to allow for fitting.

No.	For Slotting Machine Stroke, In.	Diam. Bar Inches	Length Over All Inches	Size Cutter Inches	Price Each	Price, Extra Cutters High Speed Each
91	6 and 8	1 1/2	16	1/2x 3/4	$37.50	$1.20
92	10 and 12	2	22	1/2x 3/4	67 50	1.60
93	14 and 16	2 1/4	27	5/8x 7/8	97.50	2.20
94	18 and 20	2 1/2	32	3/4x1	138.00	3.35
95	22 and 24	2 3/4	37	7/8x1 1/8	180 00	5.00

Armstrong Angle Cutter Holders



In this tool, the cutter is held at an angle of 15° which provides clearance necessary for turning close to a shoulder or to chuck jaws.

Used for turning and boring, this tool can be held in the plain turner or mounted in multiple heads by using tool shank bushings. The tool is moved in or out of the support for length of cut.

Armstrong Angle Cutter Holder is hardened all over. The shank is ground and flatted.

Each tool is boxed separately and price includes one high speed cutter bit and wrench.

No.	Each	Cutter Bits Each	Diam. Shank In.	Lgth. Shank In.	Size of Cutter In.	Extreme Lgth. In.	Wt. Lbs.
641	$4.00	$.18	3/4	2 1/2	1/4x1/4x1 3/4	3 1/4	1
642	4.75	.50	7/8	3 1/4	3/8x3/8x2 5/8	4 1/4	1 3/8
643	5.50	1.00	1	4	1/2x1/2x3 1/4	5 1/4	2
644	6.50	1.80	1 1/4	4 3/4	5/8x5/8x4	6 1/4	3 5/8
645	7.50	3.40	1 1/2	5 1/2	3/4x3/4x5	7 1/4	5 1/2

Write for information concerning any tools or machinery not illustrated. We are constantly adding new articles of merit.

Armstrong Straight Cutter Holders

This tool is used for turning, facing, chamfering, boring and similar work. The tool slot will take either square or flat cutters which may be ground to any required form. It can be held in the plain turner or mounted in multiple heads by using tool shank bushings.

No.	Each	Cutter Bits Each	Diam. Shank In.	Lgth. Shank In.	Size of Cutter In.	Extreme Lgth. In.	Wt. Lbs.
631	$4.00	$.18	3/4	2 1/2	1/4x1/4x1 3/4	3 1/8	7/8
632	4.75	.50	7/8	3 1/4	3/8x3/8x2 5/8	4	1 1/4
633	5.50	1.00	1	4	1/2x1/2x3 1/4	4 7/8	1 7/8
634	6.50	1.80	1 1/4	4 3/4	5/8x5/8x4	5 7/8	3 1/2
635	7.50	3.40	1 1/2	5 1/2	3/4x3/4x5	6 3/4	5 1/2

Armstrong Multiple Cutter Holders

In this tool, two cutters can be held in various positions for turning or boring two diameters at the same time and for combining facing or chamfering with turning or boring operations.

Multiple Cutter Holder can be held in the plain turner or mounted in multiple heads by using tool shank bushings. The tool is moved in or out of the support for length of cut.

When setting the cutter screws, the sides of the tool are kept from springing apart by the tie screws and bushings which should always be used. Tie screws and set screws are interchangeable in the various holes so that the cutters may be set as desired.

Armstrong Multiple Cutter Holder is hardened all over. The shank is ground and flatted.

Each tool is boxed separately and price includes two high speed cutter bits and wrench.

No.	Each	Cutter Bits Each	Diam. Shank In.	Lgth. Shank In.	Size of Cutter In.	Extreme Lgth. In.	Wt. Lbs.
651	$4.50	$.18	3/4	2 1/2	1/4x1/4x1 3/4	4 5/8	1 1/4
652	5.25	.50	7/8	3 1/4	3/8x3/8x2 5/8	5 13/16	2 1/4
653	6.25	1.00	1	3 1/4	1/2x1/2x3 1/4	6 1/4	3 3/8
654	7.25	1.80	1 1/4	3 1/2	5/8x5/8x4	7 1/8	5 7/8
655	8.25	3.40	1 1/2	4 1/2	3/4x3/4x5	8 7/8	9 7/8

Armstrong Facing Tools

This facing tool is used for machining pulleys, gear hubs, flanges and like parts. A solid disc can be faced to the center or the cutters may be ground and adjusted for grooving, recessing, face-forming, and counterboring. In conjunction with the latter operations, drills, counterbores, pilots and other tools can be held in the center hole.

Armstrong Facing Tool is hardened all over. The shank and center hole are ground.

Each tool is boxed separately and price includes two high speed cutter bits and wrench.

No.	661	662	663	664	665
Each	$8.00	10.00	12.50	15.50	18.00
Extra Cutter Bits each	$.35	.35	.55	.80	.80
O. D. Shank ... in.	3/4	7/8	1	1 1/4	1 1/2
Shank Hole ... in.	25/64	29/64	17/32	21/32	29/32
Length Shank ... in.	1 7/8	2 7/16	2 1/4	2 15/16	3 3/4
Width Head ... in.	2 3/4	3 1/4	4	4 3/4	5
Size Cutter Bit ... in.	1/4x3/8	1/4x3/8	5/16x7/16	3/8x1/2	3/8x1/2
Diam. Center Hole .. in.	5/8	5/8	3/4	7/8	7/8
Facing Cap., 0 to Max. Diam ... in.	0-3	0-3 1/2	0-4 1/2	0-5 1/4	0-5 3/4
Extreme Length ... in.	3 1/4	4	4	5 1/2	5 1/2
Weight ... lbs.	1 1/2	2 3/8	3 1/2	7	7 5/8

Armstrong Spring Threading Tools

Designed to combine strength and convenience of adjustment and operation with the resiliency considered by many machinists to be helpful in obtaining a smooth, finishing cut or thread.

Convenient means is provided for obtaining complete rigidity when desirable, as in taking a roughing cut or doing an ordinary job of turning. Cutter can be held at different angles. Price includes high speed V thread cutter and drop-forged wrench.

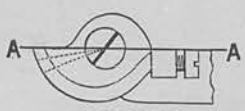
No.	Size Holder, In.	Size Cutter Sq. In.	Price Each	Price, Extra Cutters, Ea
S-50	3/8x 7/8x5 1/2	3/16	$4.15	$.35
S-51	1/2x1 1/8x6 1/2	1/4	5.00	.45
S-52	5/8x1 3/8x7 1/2	5/16	6.40	.55
S-53	3/4x1 5/8x8 1/2	3/8	8.25	.70

Armstrong Threading Tools

The cutters require grinding on the top edge only to sharpen, and therefore remain true to form and of the correct angle. Its use thus insures good thread and saves much grinding. Price includes one single point cutter V, U. S. or Whitworth Standard, and wrench. Tools equipped with singie point V cutter will be shipped unless otherwise ordered.

No.	Size Tool Inches	Price, with High Speed Cutter, Each	No.	Size Tool Inches	Price, with High Speed Cutter, Each
00T	5/16x 3/4x5	$4.15	53	3/4x1 5/8x 8	$8.25
50	3/8x 7/8x5	4.15	54	7/8x1 3/4x 9	9.75
51	1/2x1 1/8x6	5.00	55	1 x2 x10	12.40
52	5/8x1 3/8x7	6.40	..	.....	.....

Armstrong Threading Tool Cutters



Single Point

Chaser

When grinding and adjusting cutters always grind the cutter on a line from the point to the center, as indicated by the dotted lines in the outline view of the cutter.

The cutters used in the Armstrong Threading Tool require grinding on the top edge only, to sharpen, and therefore always remain true to form and of correct angle; its use thus insures perfect fitting threads, and saves much grinding, as well as dispensing entirely with forging and tempering.

Adjust the cutter so that the newly ground cutting edge represented by dotted lines is in a horizontal position or parallel to the line A. A. When fastening the cutter in position, first see that the adjusting screw is set against heel of cutter before pulling up the nut.

Made from high speed steel.

Sharp V, Whitworth or U. S. Standard Thread.

For Tool No.	Single Point Each	Chaser Each	For Tool No.	Single Point Only Each
00T	$2.65	$4.15	53	$5.25
50	2.65	4.15	54	5.25
51	3.15	5.00	55	6.40
52	4.15	6.40	..	....

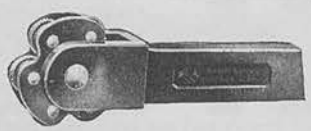
When ordering cutters or chasers (except single point V cutters) it is necessary to specify exact pitch or number of threads per inch.

Armstrong Knurling Tools

Self centering and knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. Knurls and pins made of tool steel suitably tempered. All other parts are drop-forged of bar steel, hardened. Knurls can be furnished coarse, medium and fine, in either straight line or diamond pattern. Medium diamond knurls will be sent with tool unless otherwise ordered.

No.	Complete	Extra Knurls Per Pr.	Size Holder Inches	Dimensions, Knurls Inches Diam.	Face	Hole	Wt. Lbs. Each	Knurling Cap. Diam. In.
00-K	$5.65	$1.00	5/16x 3/4x5	5/8	3/16	7/32	5/8	1/8 up
0-K	6.00	1.00	3/8x 7/8x5 1/2	5/8	3/16	7/32	7/8	1/8 up
1-K	6.75	1.15	1/2x1 1/8x6 1/2	3/4	1/4	1/4	1 1/2	3/16 up
2-K	8.00	1.15	5/8x1 3/8x7 1/2	3/4	1/4	1/4	2	3/16 up
4-K	14.00	2.00	7/8x1 3/4x9	1	1/4	5/16	4	1/4 up

Armstrong Knurling Tools
With Revolving Head

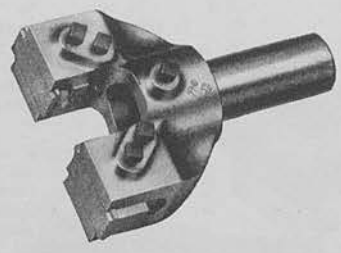


The revolving head is fitted with 3 pairs of knurls, fine, medium and coarse, either of which can be used without the inconvenience and loss of time incident to changing knurls.

Knurls can be furnished coarse, medium and fine, in either straight line or diamond pattern. Medium diamond knurls will be sent with the tool, unless otherwise ordered.

No.	Complete Each	Extra Knurls per Pair	Size Holder In.	Dimensions, Knurls, In. Face Diam.	Face Stand.	Hole	Knurl. Cap. Diam. In.	Wt., Lbs.
3-K-00	$7.50	$1.00	5/16x 3/4x5	5/8	3/16	7/32	3/16 Up	1
3-K-0	8.00	1.00	3/8x 7/8x5 1/2	5/8	3/16	7/32	3/16 Up	1 1/4
3-K-1	9.00	1.15	1/2x1 1/8x6 1/2	3/4	1/4	1/4	1/4 Up	2
3-K-2	10.50	1.15	5/8x1 3/8x7 1/2	3/4	1/4	1/4	1/4 Up	2 1/2

Armstrong Turret Knurling Tools



This tool is designed to hold standard size knurls. Any pattern or pitch knurling may be produced by running out the cross-slides, removing the knurl pins, and inserting the knurls required.

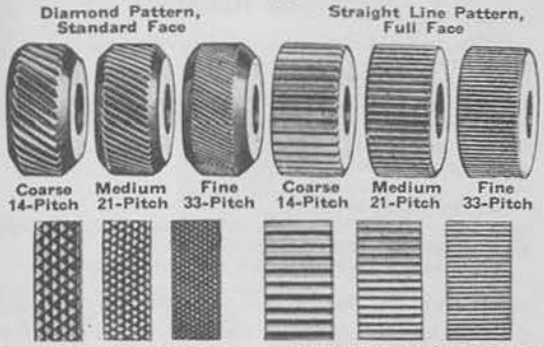
The knurling capacity can be adjusted to any diameter within range by turning the cross-slide feed screws in or out. The cross-slides are locked at proper adjustment by set screws. When necessary, a bushing may be used in the center hole to support the work.

Made of drop forged steel, machined and hardened. Knurl pins and hob-cut knurls are tempered tool steel.

Each tool is boxed separately and equipped with one pair of medium diamond knurls with standard face.

No.	671	672	673	674
Complete each	$20.00	30.00	40.00	50.00
Extra Knurls per pair	$1.00	1.00	1.15	1.15
Diam. Shank in.	1	1 1/4	1 1/2	1 3/4
Diam. Hole in.	7/16	21/32	13/16	29/32
Length Shank in.	2 1/2	3	3 3/16	3 5/8
Knurling Capacity:				
Diam. in.	1/8 to 3/4	1/8 to 1	1/4 to 1 1/2	1/2 to 2
Max. Length in.	1 5/8	2 1/2	3 1/4	4
Max. Width Head in.	3 1/2	4 3/4	6 1/4	7 3/8
Extreme Length in.	4 13/16	6 1/8	7 11/16	8 7/8
Weight lbs.	2 3/4	5 1/8	9 3/4	17

Armstrong Knurls



Actual Size of Knurling Produced by Pairs of Right and Left Hand Diamond Knurls

Actual Size of Knurling Produced by Pairs of Straight Line Full Face Knurls

Armstrong Knurls are individually hob-cut to obtain sharp perfectly formed teeth in every knurl. They are held within close limits of accuracy for thickness and for diameter of hole which is always concentric. Cut from extra high carbon tool steel, heat treated, tempered and tested.

Furnished in pairs to fit all standard makes of knurling tools and are obtainable in diamond or straight line pattern, either standard or full face. When ordering, specify pitch, pattern, face, and tool number or diameter of knurls. Unless otherwise specified, medium diamond knurls with standard face will be furnished.

For Knurling Tool No.	Per Pair	Dimensions of Knurls, Inches: Diameter	Standard Face Width	Full Face Width	Hole Diameter	Thickness
00-K, 0-K	$1.00	5/8	3/16	5/16	7/32	5/16
3-K-00, 3-K-0	1.00	5/8	3/16	5/16	7/32	5/16
671, 672	1.00	5/8	3/16	5/16	7/32	5/16
1-K, 2-K	1.15	3/4	1/4	3/8	1/4	3/8
3-K-1, 3-K-2	1.15	3/4	1/4	3/8	1/4	3/8
673, 674	1.15	3/4	1/4	3/8	1/4	3/8
4-K	2.00	1	1/4	3/8	5/16	3/8

Armstrong Improved Lathe Tool Posts

Combines the strength and holding power of the strap and stud tool clamp with the convenience of the open side and ordinary set screw tool post.

It is stronger and stiffer than the ordinary tool post, will not slip nor chatter and consequently will do more accurate work.

As there is no side projection, it is peculiarly adapted to working close up to the chuck.

The open side design permits rapid and convenient change and adjustment of tools.

No.	For Lathes Swing, In.	Price Each	No.	For Lathes Swing, In.	Price Each
1-T	12 to 14	$8.25	3-T	20 to 22	$13.50
2-T	16 to 18	10.50	4-T	24 to 32	18.00

Armstrong Planer Jacks

Designed to displace the haphazard devices and methods quite generally in use for leveling work on machine tools, and a glance will show any mechanic its convenience and utility. A set on a machine will greatly reduce the proportion of time required for preliminary arrangements as compared with the actual machine time on the job, and will, moreover, by its perfect adjustment and solidity, insure good, true surfaced work.

No.	Height, Inches Closed	Open	Price Each	No.	Height, Inches Closed	Open	Price Each
1	2 3/4	3 3/4	$1.90	3	5 1/4	7 1/2	$4.50
2	3 3/4	5 1/4	3.00	4	7 1/2	12	8.65

Armide Cutters

For Use in Armstrong Tool Holders

Armide is an improved carbide cutting metal, a new type, a carbide alloy. It approaches the diamond in hardness and machines chilled cast iron, hard and tough steels, bakelite, without appreciable loss of edge.

Because Armide is an alloy it takes a keener edge and a higher polish than previous carbides, and is tougher; has a tensile strength of 250,000 pounds per square inch, and hence is better able to withstand shock. Armide remains cool and securely brazed though its cutting edge runs red hot. Its edge remains smooth and clean for Armide will not alloy with steel or iron.

On certain jobs Armide Cutters have a tool life of from 10 to 200 times that of high speed steel. They are made in five styles: Form A, right hand turning and facing; Form B, left hand turning and facing; Form C, square nose; Form D, round nose; Form E, threading.

Square Body: Size In.	Length In.	Each	Flat Body: Size In.	Length In.	Each
1/4	1 3/4	$9.00	1/4 x 3/8	1 3/4	$9.00
5/16	2 1/4	10.50	5/16 x 7/16	2 1/4	10.50
3/8	2 1/2	11.50	3/8 x 1/2	2 1/2	11.50
7/16	3	12.50	7/16 x 9/16	3	12.50
1/2	3 1/2	14.50	1/2 x 3/4	3 1/2	14.50
5/8	4	18.50	5/8 x 7/8	4	18.50

Be sure to specify Form A, B, etc., square or flat, when ordering.

Armstrong Holders

For Grinding Cutters

In many shops where Armstrong Tool Holders are in use, the practice prevails of sharpening cutters without removing them from the holder, and as a result the holder is often ruined, the metal being cut away from the front end of the holder until it becomes too weak to support the strain of a heavy cut. This holder is designed to obviate this trouble.

No.	Holds Cutters Inches	Price Each	No.	Holds Cutters Inches	Price Each
1-G	3/8 and 1/4	$.90	4-G	5/8 and 3/4	$2.25
2-G	5/8 and 3/8	1.20	5-G	7/8, 1 and 1 1/8	3.40
3-G	7/8 and 1/2	1.50		.....	....

We are in position to supply many items not shown in this catalogue and shall be pleased to receive your inquiries.

Williams' Vulcan Bent Tail Drop-Forged Lathe Dogs

With Safety Set Screw

With Safety or Square Head Set Screws

The screws are of special steel hardened, tempered and threaded U.S. standard, except that those above 1-inch diameter have 8 threads per inch.

With Safety Set Double Screw

Unless otherwise specified a wrench will be furnished at extra price stated in table.

No.	Each	Wrench Extra	Screws Each	Capacity Inches	Screws, Inches Diameter	Length
			With Single Screw			
1	$1.00	$.12	$.20	3/8	7/16	5/8
2	1.10	.14	.24	1/2	9/16	13/16
3	1.20	.16	.30	3/4	5/8	1 1/16
4	1.40	.16	.36	1	11/16	1 1/4
5	1.70	.20	.42	1 1/4	3/4	1 3/8
6	2.00	.24	.50	1 1/2	13/16	1 5/8
7	2.40	.24	.60	1 3/4	7/8	1 3/4
8	2.80	.30	.72	2	1	1 7/8
9	3.60	.38	.86	2 1/2	1 1/8	2
10	4.60	.48	1.04	3	1 1/4	2 1/8
11	6.00	.60	1.26	3 1/2	1 3/8	2 1/2
12	9.00	.74	1.50	4	1 1/2	2 5/8
13	16.00	.90	1.80	5	1 5/8	3 1/8
			With Double Screws			
112	$16.00	$.74	$1.50	4	1 1/2	2 5/8
113	24.00	.90	1.80	5	1 5/8	3 1/8
114	34.00	1.10	2.30	6	1 3/4	3 1/2

Williams' Vulcan Drop-forged Milling Machine Dogs

No	Cap. In.	Screws, Inches Diam.	Length Under Head	Price, Each Dogs Complete	Extra Screws
42	1/2	3/8	1 1/4	$1.10	$.20
43	3/4	7/16	1 5/8	1.20	.24
44	1	1/2	2	1.40	.30
45	1 1/4	1/2	2 1/4	1.70	.32
46	1 1/2	9/16	2 3/8	2.00	.36
47	1 3/4	5/8	2 1/2	2.40	.40
48	2	11/16	2 3/4	2.80	.46

Williams' Vulcan Drop-forged Clamp Lathe Dogs

Drop forged from a strong, tough grade of carefully selected steel. The screws are threaded U. S. Standard, and are made of a special grade of steel, well adapted to the purpose and are hardened and tempered. The nuts are casehardened. Extra screws and nuts can be supplied.

No.	Distance between Screws, In.	Max. Distance between Clamps, In.	Screws, In. Diam.	Length	Complete Price Each
61	1 3/4	1 5/8	5/16	2 3/4	$3.00
62	2 1/4	1 7/8	3/8	3 5/16	4.00
63	2 3/4	2 1/2	7/16	4 1/4	5.00
64	3 1/2	3 1/4	1/2	5 3/8	7.00

Williams' Vulcan Drop-Forged Crank Handles

Unfinished handles are plain forgings without hole in hub.

Broached handles have holes finished and hubs recessed or counterbored in free end, but are otherwise plain forgings.

Finished handles are broached, counterbored, ground, polished, case-hardened all over and lacquered to prevent rusting.

Broached openings have corners slightly rounded.

No.	Each Unfinished	Each Br'ched	Each Fin.	Length, In. C to C	Length, In. Extreme	Handle Above Arm	Hub, In. Lgth.	Hub, In. Diam.	Sq. Hole Br'ched, In. Std. Stock	Sq. Hole Br'ched, In. Max. To order
00	$.70	$1.22	$1.85	1 3/4	2 5/8	2 3/8	1 1/4	1	1/2	5/8
0	.78	1.30	2.00	2 1/4	3 1/8	2 1/2	1 1/4	1	1/2	5/8
1	.88	1.40	2.30	3	4	2 3/4	1 1/2	1 1/4	9/16	13/16
2	.88	1.40	2.30	3 1/2	4 5/8	2 7/8	1 5/16	1 1/16	1/2	5/8
4	1.05	1.60	2.65	4	5 1/8	3 1/8	1 3/8	1 1/4	9/16	13/16
6	1.30	1.95	3.15	5	6 1/8	3 1/8	1 13/16	1 1/4	5/8	13/16
8	1.65	2.40	3.85	6	7 1/8	3 1/8	1 15/16	1 1/4	11/16	13/16
10	2.10	2.95	4.75	7	8 1/4	3 3/8	2 1/16	1 3/8	3/4	7/8
12	2.65	3.60	5.80	8	9 3/8	3 5/8	2 3/16	1 9/16	7/8	1
14	3.00	4.00	6.50	9 1/8	10 1/2	3 3/4	2 1/2	1 1/2	7/8	1 1/8
16	3.95	5.15	8.15	10	11 1/2	4	3	1 3/4	1	1 1/8

Williams' Vulcan Ball Pattern Machine Handle Forgings

Unfinished, with Smooth, Planished Surface

No.	Extreme Length Inches	Standard Length Shank Inches	Maximum Length Shank Inches	Diameter Shank Inches	Price Each
00	2	1/2	11/16	5/16	$.21
0	2 1/4	1/2	3/4	11/32	.21
1	2 3/4	5/8	1	13/32	.23
2	3 1/4	3/4	1 1/8	15/32	.29
3	3 7/8	7/8	1 1/4	15/32	.36
4	4 1/2	1	1 1/2	17/32	.46
5	5 1/8	1 1/8	1 7/8	19/32	.57
6	5 7/8	1 1/4	2	11/16	.69
7	6 5/8	1 1/2	2 1/8	3/4	.84

Williams' Vulcan Drop-Forged Strap Clamps

These forgings are made from a strong, tough grade of carefully selected steel and are submitted to a special refining process or heat treatment after forging which increases their strength and stiffness. On planer, lathe, drill press, milling and boring machine work they are time-saving and effective. Because of draft or taper on forgings, minimum dimensions of slot are given in table.

Plain Slot Pattern

No.	Each	Length In.	Width, In. Ends	Width, In. Center	Thickness, In. Ends	Thickness, In. Center	Slot Min. Dimen., In. Length	Slot Min. Dimen., In. Width
54	$.60	4	1 5/16	1 5/8	1/2	3/4	1 3/8	11/16
56	1.00	6	1 1/4	1 3/4	9/16	7/8	2 1/16	11/16
58	1.70	8	1 1/2	2 1/8	3/4	1 1/8	2 13/16	13/16
59	2.80	10	1 3/4	2 1/2	15/16	1 3/8	3 11/16	15/16

U Pattern

No.	Each	Length In.	Max. Width In.	Thickness In.	Slot, Min. Dimen. In. Length	Slot, Min. Dimen. In. Width	Finger Dimen. In.
64	$.60	4 1/2	1 3/4	3/4	3 1/2	11/16	1/2x1 1/2
66	1.00	6 5/8	2	7/8	5 1/2	11/16	5/8x5/8
68	1.70	8 3/4	2 1/2	1 1/8	7 3/8	13/16	3/4x3/4

Starrett Tools

Our listing of Starrett Tools on the following pages does not cover all the tools available in this line.

Complete Starrett Catalog Sent Upon Request.

Starrett Steel Rule Graduations

English Measure

Rules are divided into parts of inches as shown in table.

No.	1st Corner	2nd Corner	3rd Corner	4th Corner
1	10, 20, 50, 100	12, 24, 48	16, 32, 64	14, 28
2	10, 20, 50, 100	12, 24, 48	16, 32, 64	8
4	64	32	16	8
7	64	32	16	100
10	32	64	..	...
11	64	100	..	...
12	50	100	..	...
16	32	64	50	100

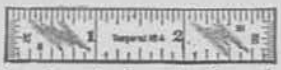
Starrett Spring-tempered Rules

The No. 301 rule is commonly used on gear cutting work.

No.	Length Inches	Width Inches	Approx. Thickness Inches	Number of Graduation	Price Each
300	1	1/2	3/64	4	.30
300	2	1/2	3/64	4	.45
300	3	9/16	3/64	4	.60
300	4	5/8	3/64	4	.75
300	6	3/4	3/64	4	.90
300	9	7/8	3/64	4	1.35
300	12	1	3/64	4	1.65
300	18	1 1/8	3/64	4	2.60
300	24	1 1/4	3/64	4	3.25
300	36	1 1/4	3/64	4	7.00
300	48	1 1/4	3/64	4	10.00
301	6	3/4	3/64	1	.90
301	12	1	3/64	1	1.65
302	6	3/4	3/64	2	.90
302	12	1	3/64	2	1.65
307	1	1/2	3/64	7	.30
307	2	1/2	3/64	7	.45
307	3	9/16	3/64	7	.60
307	4	5/8	3/64	7	.75
307	6	3/4	3/64	7	.90
307	9	7/8	3/64	7	1.35
307	12	1	3/64	7	1.65
307	18	1 1/8	3/64	7	2.60
307	24	1 1/4	3/64	7	3.25
307	36	1 1/2	1-10	7	7.00
307	48	1 1/2	1-10	7	10.00
309	6	3/4	3/64	16	.90
309	12	1	3/64	16	1.65

Starrett Spring Tempered Steel Rules

No. 600 Rule. Has No. 4 graduation, which consists of 8ths and 16ths on one side, and 32ds and 64ths on the other. In 1 to 24-inch lengths.



No. 603 Rule. Has No. 4 graduation, with the 32ds and 64ths figured, like No. 600, and is graduated in 32ds of an inch on both ends of one side, as shown by the cut. Made in 2 inch to 12 inch lengths, inclusive.

No. 600 and No. 603

Approximate Thickness: 3/64 in., or No. 18 gage:

Wdth., Ins..	1/2	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
Lgth., Ins. .	1	2	3	4	6	9	12	18	24
Each	.30	.45	.60	.75	.90	1.35	1.65	2.60	3.25

No. 303 Starrett Spring-tempered Rules

With Graduated End

No. 303 has No. 4 graduations and is graduated in 32nds of an inch on opposite sides of one end.

Made in 2 to 12-inch lengths only.

Length.....Inches	2	3	4	6	9	12
Price No. 303.....Each	.45	.60	.75	.90	1.35	1.65

No. 325 Starrett Semi-Flexible Steel Rules

Semi-flexible steel rules with No. 4 graduation, and graduated 32ds of an inch on both sides of one end. About 1/50 inch thick.

Length, In.	6	12
Price, No. 325, Each	.90	1.65

Starrett Flexible Steel Rules

Graduated on one side only. Those from 1 inch to 12 inches are 1/2 inch wide, and will easily conform to a 2-inch circle. Those from 18 inches to 48 inches are 3/4 inch wide, and are made from a trifle heavier stock.

No.	Length Inches	Width Inches	Graduation	Price Each	No.	Length Inches	Width Inches	Graduation	Price Each
320	1	1/2	10	.30	320	24	3/4	10	3.25
320	2	1/2	10	.45	320	36	3/4	10	7.00
320	3	1/2	10	.60	320	48	3/4	10	10.00
320	4	1/2	10	.75	321	6	1/2	11	.90
320	6	1/2	10	.90	321	12	1/2	11	1.65
320	9	1/2	10	1.35	322	6	1/2	12	.90
320	12	1/2	10	1.65	322	12	1/2	12	1.65
320	18	3/4	10	2.60	...	..	..	..	.....

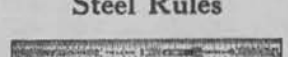
No. 323 Starrett Flexible Steel Rules

Has the usual 64ths and 32nds graduations. Every 4th graduation of 32nds and 8ths graduation of 64ths numbered.

Furnished with metal bound pocket cases at no additional charge.

No. 323 Flexible Steel Rule.....Each .90

No. 320K Starrett Pocket Clip Flexible Steel Rules



Designed for shopmen who use a rule many times a day. Has permanently attached clip for fastening to clothes, positioned at 4 in. mark. 6 in. rule, graduated one side only. One edge in 32nds, other edge in 64ths.

Price, No. 320K Pocket Clip Rule.....Each 1.00

No. 324 Starrett Flexible Steel Rules

Graduated Both Sides—Quick Reading

A departure from the conventional flexible steel rule, as both sides are graduated, as shown by the above cuts. Graduated 64ths on one side and 32ds on the other, with the addition of quick reading figures. As illustrated, it is graduated on opposite sides and opposite edges and from one end.

Close working mechanics, more and more, lean to the 6-inch flexible rule as the one rule they carry and, as this rule is graduated so that it is always in the natural position to use, it is becoming very popular. No turning end for end for measuring with figures upside down. Made only in 6-inch lengths.

Price, No. **324** Steel Rule.....Each **.90**

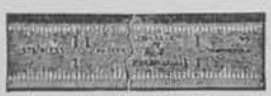
Starrett Narrow Steel Rules

About 1/8 in. wide, 1-25 in. thick, spring tempered. Graduated one corner each side whole length.

No. 330 Narrow, No. **10** Graduation (32nds and 64ths).
No. 331 Narrow, No. **11** Graduation (64ths and 100ths).

Length, Inches...	4	6	9	12
Price, Each.....	**.75**	**.90**	**1.35**	**1.65**

No. 1000 Starrett Stainless Rules



Hardened and tempered. Will not rust or stain. Made of the highest grade of stainless steel especially heat treated. Made in two sizes: 6-inch, approximately 3/4 inch wide; 12-inch, approximately 1 inch wide. Graduated in 8ths and 16ths on one side, and in 32nds and 64ths on the other.

Price, No. **1000**, 6-Inch.....Each **1.35**
" " **1000**, 12-Inch..... " **2.65**

No. 1020 Starrett Flexible Stainless Steel Rules

Thin spring tempered; graduated on one side, and in 32nds and 64ths. Made in 6 inch only.

Price, No. **1020**.....Each **1.35**

Starrett Steel Shrink Rules

These rules are spring-tempered. Made with No. 4 graduation, 8ths, 16ths, 32nds and 64ths.

No.	Shrinkage Inch per Foot	Length Inches and Price Each 6-In.	12-In.	24-In.
370	1/8	**1.00**	**2.10**	**4.25**
***372**	1/8	**1.00**	...	...
†373	1/8	**1.00**	**2.10**	**4.25**
****375**	1/16	**1.00**	**2.10**	**4.25**
376	3/32	...	**2.10**	...
††377	1/4	**1.00**	**2.10**	**4.25**
378	3/32	...	**2.10**	...

No.	Shrinkage Inch per Foot	Length Inches and Price Each 6-In.	12-In.	24-In.
374	1/32	..	**2.10**	**4.25**
368	1/16	..	**2.10**	**4.25**
369	3/8	..	**2.10**	**4.25**
388	1/32	..	**2.10**	**4.25**
389	1/32	..	**2.10**	**4.25**
393	1/16	..	**2.10**	**4.25**
...	...	..	..	...	...	...

*Flexible. **Brass. †Shrink and Standard. ††Double shrink.

No. 419 Starrett Hook Rules

Very convenient in taking measurements from points where one cannot see if rule is even with measuring edge from round corners, through hubs of pulleys, setting inside calipers, etc. Hook is quickly removed by turning the eccentric stud one half turn.

The 6, 9 and 12-inch is same as No. 303 Rule, No. 4 graduation with hook and with end graduation.

The 18 and 24-inch is same as No. 300 Rule, No. 4 graduation with hook and without end graduation. The 36 and 48-inch is same as No. 410. They are made from heavier stock about 2/20 inch thick and 1 1/2 inches wide.

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
6	**1.25**	18	**3.10**	48	**10.75**
9	**1.75**	24	**3.75**	..	.....
12	**2.15**	36	**7.65**	..	.....

No. 422 Starrett Narrow Hook Rules

These rules are designed for taking measurements through small holes. Measurements through holes as small as 1/32 inch approximately, can be obtained. Graduated on one side in 32ds, and the other in 64ths of an inch.

Length, in.	4	6	9	12
Price, No. **422**, Each.....	**1.00**	**1.20**	**1.65**	**2.00**

No. 296 Starrett Slide Caliper Rules

For taking quick measurements on small rods, sheet stock, tc. 4 inches long, 3/8 inch wide, 1/8 inch thick with jaws 1/4 inch deep. No. 4 graduation with 32ds and 64ths on front, 8ths and 16ths on back.

Price, No. **296** .....Each **2.50**

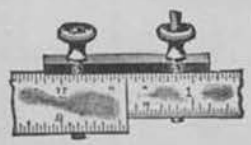
Starrett Center Gauges

For use in grinding and setting screw cutting tools. Graduated in 14ths, 20ths, 24ths, and 32nds of an inch, except No. 397 and No. 398, which are graduated in millimeters and 1/2 mm.

Packed 6 in a box.

No.	Description	Price Each
390	U. S. Standard, 60°, not tempered	**.40**
391	U. S. Standard, 60°, spring tempered	**.50**
395	Whitworth Standard, 55°, not tempered	**.40**
396	Whitworth Standard, 55°, spring tempered ..	**.50**
397	Metric, 60°, not tempered	**.40**
398	Metric, 60°, spring tempered	**.50**

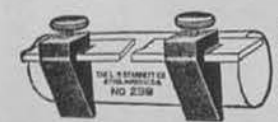
No. 299 Starrett Rule Clamps



Used to clamp two steel rules together, making one long rule. Rules may be of the same or different widths up to 1 1/4 inches. Will fit in tool boxes shorter than 12 in.

Price, No. **299**....Each **.60**

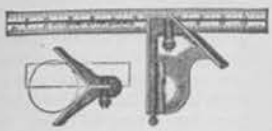
No. 298 Starrett Key-Seat Clamps



Designed to transform any steel scale into a key seat rule. Made of steel, case hardened and accurately ground. Weigh but one once. 1 pair in a box. 6 boxes to a carton.

Price, No. **298**.....per Pair **.75**

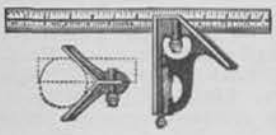
No. 11 Starrett Combination Squares



With the adjustable blade this forms one of the most convenient and useful tools for mechanics' use. It is a complete substitute for a whole set of common try squares. Also convenient for a depth gauge, or to square a mortise. Blades are hardened and graduated in No. 4 and No. 7 graduations. All except the 4 inch stock are fitted with levels. Auxiliary center head forms a centering square.

	Price Each		Price Each
4 inch, with Center Head,..	2.10,	without..	1.50
6 " " " "	2.40	"	1.80
9 " " " "	3.00	"	2.40
12 " " " "	3.60	"	3.00
18 " " " "	4.50	"	3.90
24 " " " "	5.40	"	4.80

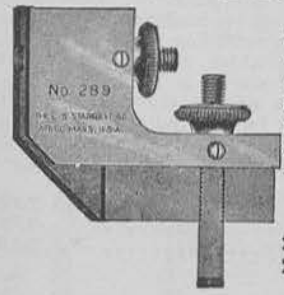
No. 33 Starrett Drop-Forged Steel Combination Squares



Stock, center head and blades are hardened. Blades are graduated in Nos. 4 or 7. All squares are furnished with center heads and No. 4 graduations unless otherwise ordered.

Size Inches	Price, Each With Center Head	Price, Each Without Center Head	Size Inches	Price, Each With Center Head	Price, Each Without Center Head
4	3.80	2.30	12	6.20	4.30
6	4.60	3.10	18	7.30	5.40
9	5.30	3.40	24	8.20	6.30

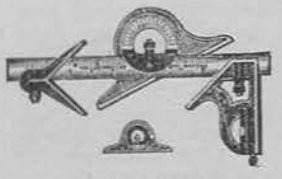
No. 289 Starrett Attachments for Combination Squares



This attachment is made to fit the 12, 18, and 24-inch blades of Nos. 11, 23 and 33 squares. It can be used in connection with any of the regular rules as wide as one inch or with the thin steel square No. 21 for laying out keyseats, etc.

No.	Height Inches	Length Inches	Price Each
289A	1½	1 25/32	1.00
289B	2 5/8	2 3/8	1.25

No. 9 Starrett Combination Sets



The combination square met with such approval from machinists that it was but a step to add to it the protractor head and have a combination set, made up of the rule on which to slide the square, center and protractor heads; the latter are graduated in degrees from 0 to 180, both right and left, and can be accurately adjusted to any angle. Furnished with No. 4 or No. 7 graduation. No. 4 graduation sent unless otherwise ordered.

Length Inches	Price Each	Length Inches	Price Each
9	6.00	18	7.50
12	6.60	24	8.40

No. 433 Starrett Combination Sets

Has hardened blade stock and center head; furnished with No. 4 or No. 7 graduation.

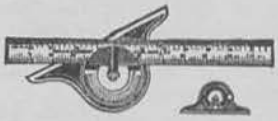
Length Inches	Price Each	Length Inches	Price Each
9	8.30	18	10.30
12	9.20	24	11.20

No. 434 Starrett Combination Sets

Has hardened stock center head and blade, also reversible protractor head.

Length Inches	Price Each	Length Inches	Price Each
9	9.50	18	11.50
12	10.40	24	12.40

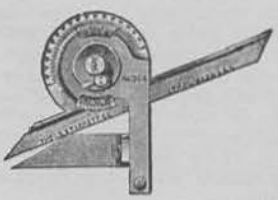
No. 12 Starrett Bevel Protractors



An adjustable rule, held firmly at any point by thumb nut, passes through a revolving turret which is graduated in degrees from 0 to 180, both right and left, and can be accurately adjusted to show any angle. A small level is attached to head, forming an adjustable level to show any degree. Blades are hardened and furnished with Nos. 4 or 7 graduation. Will be sent with 12-inch blade or No. 4 graduation unless otherwise ordered Head is 7 inches long. Blade is hardened.

Length.....Inches	9	12	18	24
Price.....Each	4.50	4.90	6.00	6.90
Price, Protractor Head only, with Level.....Each				3.00

No. 364 Starrett Universal Bevel Protractors



Made with verniers reading five minutes or 1/12th of a degree. The verniers are so placed with relation to the graduated half circle as to make protractor readable by vernier in any position. Disc is graduated in degrees from 0 to 90 each way and rotates the entire circle.

No.	Length Blade, Ins.	Each	No.	Length Blade, Ins.	Each
364-A	7	18.50	*364-D	12	22.75
*364-B	7	20.50	364-E	7 and 12	20.50
364-C	12	19.75	*364-F	7 and 12	23.50

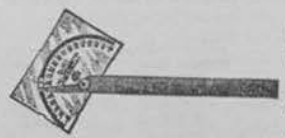
*With leather cases.

No. 19 Starrett Steel Protractors

Graduated in degrees from 0 to 180 both ways. Blade is 6 inches long, and by means of patent lock joint is set firmly by a slight turn of the nut. Convenient for setting bevels, etc.

Price, No. 19 .....Each 2.50

No. 183 Starrett Steel Protractors



Has rectangular head giving four working faces, also two rows of figures reading both ways to show the complementary degrees. Convenient for setting bevels, use as a T-square, etc.

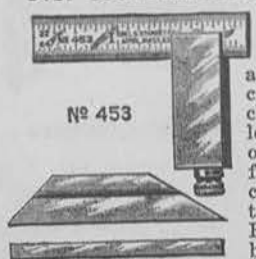
Price, No. 183 .....Each 3.00

No. 15 Starrett Universal Bevels

The set-off in the blade increases its capacity and usefulness for bevel gear work, etc., so that any angle, however slight, may be obtained.

Price, No. **15**, 3-inch..... .....Each **2.25**

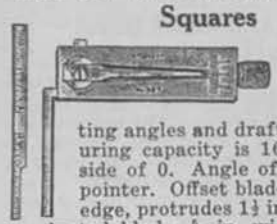
No. 453 Starrett Die Maker's Squares



This tool has been designed to provide means whereby a blade can be adjusted at any angle, with the beam. An excellent gage for filing the clearance in dies, etc. By releasing small screw in back of stock the fulcrum pin is forced back, and the blade clamped firmly to the seat and then used as a regular square. Fitted to take narrow and bevel blades.

Price, No. **453A**, Square .....Each **4.00**
" No. **453B**, With Bevel or Narrow Blade " **4.30**
Bevel blade sent unless otherwise ordered.
" No. **453C**, Square, complete ..... " **4.60**

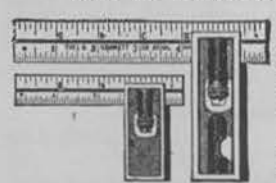
No. 457 Starrett Improved Die Makers' Squares



A tool and die makers' square with degree markings on the stock or beam and an offset blade, so that light is unobstructed in small holes. Useful for getting angles and drafts on patterns. Angle measuring capacity is 16 degrees, 8 degrees either side of 0. Angle of blade indicated by line on pointer. Offset blade $\frac{1}{4}$ in. wide beveled on each edge, protrudes $1\frac{1}{4}$ in. from square. Straight and graduated blade $\frac{5}{32}$ in. wide, $2\frac{1}{4}$ in. long. Graduated 32nds on one side, 64ths on other. Blade has narrow end. Beam $2\frac{1}{16} \times \frac{3}{4} \times 1\frac{1}{2}$ in. thick.

Price, No. **457A**, straight blade only.....Each **4.50**
" No. **457B**, offset blade only..... " **5.00**
" No. **457C**, with straight and offset blades ..... " **5.50**

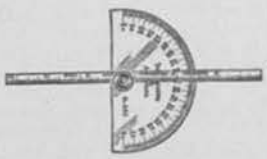
No. 13 Starrett Double Squares



This square is conceded to be the most practical one for machinists, tool makers, and pattern makers ever offered. Sliding blade, shortened or extended full length, makes it more valuable than a full set of common squares. Furnished in No. 4 Graduation. Stocks of 6, 9, 12 inch sizes have level.

Length Blade In.	Price Each Without Bevel Blade	Price Each With Both Blades
4	1.85	2.35
6	2.85	3.45
9	3.60	....
12	4.75	....

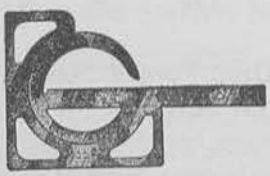
No. 493 Starrett Protractor and Depth Gauges



This tool will be appreciated by machinists, draftsmen and shop foremen. Any angle in one-half circle (180°) may be obtained and the back is finished to permit its being laid flat upon paper or work. Blade being adjustable permits its being set at any length within its capacity, permitting its use as a depth gauge. Scale, clamped by a conveniently knurled nut, is graduated to 32nds and 64ths.

Price, No. **493**.....Each **3.00**

No. 362 Starrett Draftsman's Protractors



This protractor can be quickly set to any angle, used either side up and on either of the outside edges of the frame. Very advantageous in dividing a circle, transferring angles or laying off any given angle, without resetting, on either side of a line.

It also forms an extension for a T square and very often takes the place of 45 and 60-degree triangles. Graduations are clear and sharp. With the vernier it reads to $\frac{1}{12}$ of a degree or 5 minutes. Blade is $8\frac{1}{2}$ inches long, frame approximately 6 inches square. Furnished nickel plated.

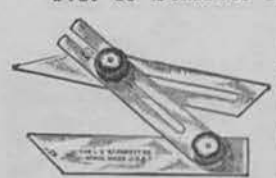
No. **362** Protractor, without Case.....Each **13.50**
No. **362-B** Protractor, with Leather Case.....Each **16.50**

No. 47 Starrett Improved Bevels

The advantages of this bevel over other tools of this kind consist in its having not only the blade slotted but the stock as well, this admitting adjustments that cannot be obtained with a common bevel. The clamping screw head, which the cut does not show, is let into a rabbet, flush with the surface of the stock allowing it to lie flat on the work. May be used with No. 193 as a bevel protractor. Made in 3 sizes, 6, 9 and 12 inch, with corresponding stock lengths of $3\frac{1}{2}$, $4\frac{1}{2}$ and 6 inches. Packed 1 in a box.

Price, No. **47**, 6 inch .....Each **2.25**
" No. **47**, 9 inch ..... " **2.75**
" No. **47**, 12 inch ..... " **3.75**

No. 49 Starrett Combination Bevels



This bevel has a stud riveted in the straight edge stock or head, on which its split blade is hinged, so as to swing over the stock and be clamped at any angle.

The slotted auxiliary blade with clamp bolt may be slipped on to the split blade and be clamped at any desired angle and used, in combination with the stock of the other, for laying out work, measuring, or showing any angle desired, and when so combined will lay flat on its work. The stock is about 4 inches long.

May be used with the 193 Protractor as a bevel protractor.

Packed 1 in a box.

Price, No. **49**.....Each **2.50**

No. 20 Starrett Hardened Steel Squares

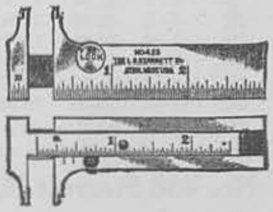
Squares of hardened solid steel, not graduated. They are specially recommended as a standard square. The 15, 18 and 24-inch have a stock support.

Packed 1 in a box.

Length Blade In.	Length Beam In.	Each	Length Blade, Ins.	Length Beam, Ins.	Each	Wood Case Extra
			6	4 5/16	9.00	3.00
			9	5 9/16	13.50	3.25
1	1	3.00	12	7	18.00	3.75
1½	1½	3.60	15	8 5/8	30.00	5.00
2	1 7/8	3.90	18	10½	38.00	5.50
3	2¾	4.50	24	12 5/16	54.00	7.00
4½	3½	6.90	36	13¼	115.00	10.00

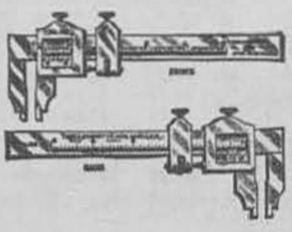
Starrett Pocket Slide Calipers

Improved clamping device is a valuable feature as it may be locked by thumb of same hand in which tool is held. Two lines on stock as shown in lower illustration enable user to get either inside or outside measurements. No. 425 is graduated in 32nds and 64ths; No. 425A is graduated in 32nds on stock and 100ths on slide.



Size Inches	Depth Jaws Inches	Nibs When Closed Inch	Price Each No 425	Price Each No. 425A
3	11/16	.125	4.00	4.00
5	1 7/16	.250	5.00	5.00

No. 122 Starrett Vernier Calipers



Points are placed on beam and slides for setting dividers to transfer distances. Jaws are hardened, ground and lapped. Graduated to read by means of vernier in 1000ths of an inch. A ¼-inch cylindrical plug standard for testing can be furnished at a cost of $4.50. Plush lined case furnished unless otherwise ordered. Larger sizes upon application. Packed one in a box.

Size Inches	Depth Jaw Inches	Width Nibs Inches	Price, Each Without Case	Price, Each With Case
4	1 9/16	.25	21.00	23.35
6	1 9/16	.25	24.00	26.75
9	2 3/8	.30	27.60	31.35
12	2 3/8	.30	30.00	34.00
24	2 3/8	.30	42.00	49.00
36	3	.50	90.00	105.00
48	3	.50	165.00	190.00

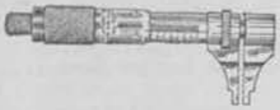
No. 124 Starrett Inside Micrometer

Designed for internal and linear measurements, such as measuring cylinders, rings; also for setting calipers, comparing gages, etc. Extension rods are provided with a collar against which rods are set in micrometer head.

No.	No. Rods	No. Gages	Range Inches	Price Without Case	Price With Case
124A	6	1–½ in.	2 to 8	7.25	9.00
124B	10	1–½ in.	2 to 12	8.50	11.25
124C	4	{1–1 in. {2–2	8 to 32	10.25	14.25
124D	Comprises Sets A and C....			17.50	22.50
Handle for use with A, B and C, extra......					.75

No. 700 Starrett Inside Micrometer Calipers

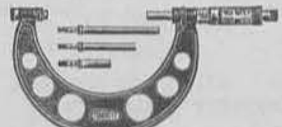
Range .200-Inch to 1-Inch by Thousandths



Designed to provide a tool to read as a micrometer, with vernier calliper styled jaws, for measuring small internal dimensions. Contact surfaces are hardened and ground. Furnished with locknut. Packed one in a box.

No. **700** Inside Micrometer Calipers..........Each **14.00**
Case for No. 700 Calipers, Extra..............Each **1.25**

Starrett Micrometer Caliper Sets



Frames made from forgings with black enamel finish. Decimal equivalents stamped on thimbles and micrometers provided with lock nuts.

No.	224AA	224A	224MAA	224MA
English Range, Inches.....	0-4	2-6	......	......
Metric Range, Mm........	...	...	0-100	50-150
Less Ratchet Stop.....Each	18.00	20.00	18.00	20.00
With Ratchet Stop ....Each	18.50	20.50	18.50	20.50
Less Ratchet Stop, With Standards ....Each	21.75	26.50	21.75	26.50
With Ratchet Stop, With Standards ....Each	22.25	27.00	22.25	27.00

Sent with ratchet stop and four standards in finished wood case.

Larger Sizes

Furnished with lock nut, ratchet stop—Nos. 224B and 224C with 3 standards and Nos. 224D, 224E and 224F with 4 standards.

No. **224B**, Range 6 to 9 inches..............Each **30.00**
No. **224C**, Range 9 to 12 inches..............Each **35.00**
No. **224D**, Range 12 to 16 inches..............Each **45.00**
No. **224E**, Range 16 to 20 inches..............Each **55.00**
No. **224F**, Range 20 to 24 inches..............Each **65.00**

Complete Sets

No. **224K**, Range 2 to 24 inches, with standards, lock nuts and ratchet stops in case......per Set **257.00**

No. **224L**, Range 0 to 24 inches, with standards, same as No. 224K, but with addition of No. 436 micrometers, sizes 1 and 2 inch......per Set **272.25**

No. **224R**, Range 0 to 24 inches, with standards, consists of No. 436 micrometers with ratchet stops, sizes 1, 2, 3, 4, 5 and 6-inch, and Nos. 224B, C, D, E, F........................per Set **289.25**

No. 224M same as 224 but graduated by hundredths of a millimeter and plain thimbles. Same prices.

No. 569 Starrett Tube Micrometer Calipers

Range 0 to 1 inch. Depth capacity, ¾ inch. Hole capacity, ⅝ inch and up.

Anvil positioned upright to provide a good tool for measuring tubular walls or the thickness from a hole to an edge.

Black enameled frame. Special forms and diameters of anvil may be furnished when desired.

No. **569** Without Ratchet.................Each **7.50**
No. **569** With Ratchet...................Each **8.00**

No. 232 Starrett Micrometer Calipers

For measurements by thousandths up to ½ inch. Frame is cut out for use in places where the ordinary frame cannot be inserted. Width of anvil end, approx. 9/32 inch.

Price, No. 232 .....Each **8.50**
" No. 232 with Leather Case..... " **9.70**

No. 210 Starrett Micrometer Calipers

Anvil and spindle conical contact points flattened about 1/64 inch. Black finish frame. Thimble bears fractions and decimal equivalents.

No. **210A,** Range 0 to ⅞ inch.....Each **7.00**
No. **210B,** Range 1 to 1⅞ inches.....Each **8.00**

Starrett Micrometer Calipers

No. 3

For measurements by 1000ths to 1 inch. Furnished with lock nut and ratchet stop.

Price, No. 3....Each **10.00**
" with Case " **11.25**

No. 113

For measurements by 10000ths from 0 to 1 inch. Has lock nut and ratchet stop.

Price, No. 113.....Each **11.75**
" with Leather Case..... " **13.00**

Starrett Micrometer Calipers

Capacity, 0 to 1 inch. Has ratchet stop, lock nut and short anvil.

Price, No. 230, Graduated to 1000ths.....Each **10.00**
" " 231, " " 10000ths.... " **11.75**
" Leather Case ..... " **1.25**

No. 2A Starrett Micrometers

For measurements by 1000ths from 0 to 2 inches. Has lock nut, ratchet stop and 1-inch test gauge.

Price, No. 2A.....Each **14.00**
" " 2A, with Leather Case..... " **15.80**

No. 2 Starrett Micrometer Calipers

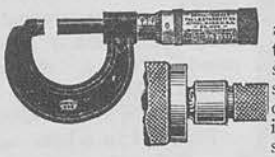
For measurement by thousandths from one inch to two inches.

Has lock nut, ratchet stop, and 1 inch test gage.

Packed 1 in a box.

Price, No. 2 .....Each **11.00**
" No. 2 with Leather Case ..... " **12.60**

No. 436 Starrett Micrometer Calipers



Has black enameled frame, and decimal equivalents on thimble. Sent without ratchet stop and without case or standards unless otherwise ordered. †Standards are 1 inch smaller than micrometer size.

Size Inches	Range Inches	Each: Without Ratchet No Lock Nut	Each: With Ratchet No Lock Nut	Each: With Lock Nut No Ratchet	Each: With Ratchet With Lock Nut	†Standards Extra Each	Leather Cases Extra Each
1	0- 1	**6.25**	**6.75**	**7.25**	**7.75**	...	**1.25**
2	1- 2	**7.00**	**7.50**	**8.00**	**8.50**	**1.00**	**2.50**
3	2- 3	**7.75**	**8.25**	**8.75**	**9.25**	**1.25**	**3.00**
4	3- 4	**8.50**	**9.00**	**9.50**	**10.00**	**1.50**	**3.50**
5	4- 5	**9.25**	**9.75**	**10.25**	**10.75**	**1.75**	**4.00**
6	5- 6	**10.00**	**10.50**	**11.00**	**11.50**	**2.00**	**4.75**
7	6- 7	**11.00**	**11.50**	**12.00**	**12.50**	**2.25**	*...
8	7- 8	**12.00**	**12.50**	**13.00**	**13.50**	**2.50**	*...
9	8- 9	**13.00**	**13.50**	**14.00**	**14.50**	**2.75**	*...
10	9-10	**14.00**	**14.50**	**15.00**	**15.50**	**3.00**	*...
11	10-11	**15.00**	**15.50**	**16.00**	**16.50**	**3.25**	*...
12	11-12	**16.00**	**16.50**	**17.00**	**17.50**	**3.50**	*...

1 to 6 inch furnished to read to 10/1000 in.....Extra **1.75**
*Furnished in finished wood case without extra charge.

No. 436 Starrett Micrometer Caliper Sets

Has black enameled frame and decimal equivalents on the thimble. Sets are sent without case and without standards unless otherwise ordered.

No.	No. of Calipers In Set	Sizes, Inches	Without Lock Nut Each	With Lock Nut Each	Case Extra Each
436A	3	1, 2, 3	**21.00**	**24.00**	**4.00**
436B	6	1, 2, 3, 4, 5, 6	**48.75**	**54.75**	**7.50**
***436C**	3	1, 2, 3	**22.50**	**25.50**	**4.00**
***436D**	6	1, 2, 3, 4, 5, 6	**51.75**	**57.75**	**7.50**
436E	6	7, 8, 9, 10, 11, 12	**87.00**	**93.00**	†...
***436F**	6	7, 8, 9, 10, 11, 12	**90.00**	**96.00**	†...
436G	12	1 to 12	**139.25**	**151.25**	†...
***436H**	12	1 to 12	**145.25**	**157.25**	†...

*These sets are furnished with ratchet stops; all others are furnished without.
†Furnished in finished wood case without extra charge.

Standards

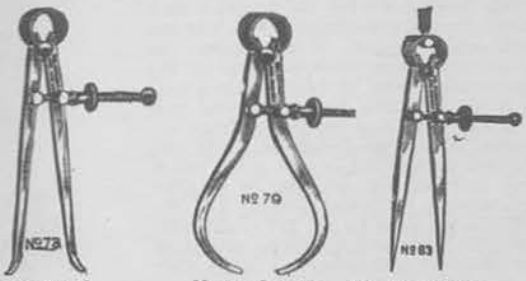
For Calipers No.	No. of Standards in Set	Per Set	For Calipers No.	No. of Standards in Set	Per Set
436A	2	**2.25**	**436E**	..	**17.25**
436B	5	**7.50**	**436F**	..	**17.25**
436C	2	**2.25**	**436G**	..	**24.75**
436D	5	**7.50**	**436H**	..	**24.75**

Starrett Screw Thread Micrometer Calipers

The movable spindle is pointed, and the end of the anvil is of same form as the thread to be measured. Furnished with either fixed or movable anvils. A 1-inch standard is included with each 2-inch caliper.

No.	Capacity Inches	Range Threads	Price Each
575A	1	8 to 13	**12.00**
575B	1	14 " 20	**12.00**
575C	1	22 " 30	**12.00**
575D	1	32 " 40	**12.00**
585A	2	4½ " 7	**14.50**
585B	2	8 " 13	**14.50**
585C	2	14 " 20	**14.50**
585D	2	22 " 30	**14.50**

Starrett Yankee Calipers and Dividers



No. 73, Inside No. 79, Outside No. 83, Dividers

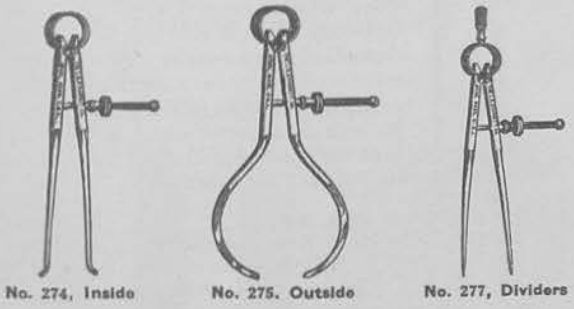
These calipers and dividers are light weight, inexpensive but reliable tools. They are equipped with quick-adjusting automatic self-closing or solid nut.

Size Inches	Price, Each — Nos. 73 and 79 — Spring Nut	Solid Nut	Nos. 83 — Spring Nut	Solid Nut
2½	1.00	.80	1.00	.80
3	1.05	.85	1.05	.85
4	1.10	.90	1.10	.90
5	1.15	1.00	1.15	1.00
6	1.20	1.05	1.20	1.05
8	1.40	1.20	1.50	1.35
10	1.80	1.65	1.80	1.65
12	2.00	1.80	2.00	1.80

Duplicate Parts

Price,	Screw and Ball	Each	.20
"	Thumb Attachment (No. 83 only)	"	.20
"	Solid Nut	"	.15
"	Spring Nut	"	.30
"	Leg (Right)	"	.30
"	Spring	"	.30
"	Jam Washer	"	.15
"	Fulcrum Stud	"	.15
"	Stud	"	.15
"	Leg (Left) with Screw Attached	"	.50

Starrett Toolmakers' Calipers and Dividers



No. 274, Inside No. 275. Outside No. 277, Dividers

These calipers and dividers are made from round stock with legs drawn down, making them tough and rigid. The fulcrum is hardened, bows extra strong, screw and nut nicely fitted, all highly finished. They are made with solid nut only.

Size Inches	Price Each	Size Inches	Price Each
2	1.20	5	1.80
3	1.50	6	2.10
4	1.80	,	....

Duplicate Parts

Price,	Screw and Ball	Each	.20
"	Thumb Attachment (No. 277 only)	"	.20
"	Nut	"	.15
"	Leg (Right)	"	.40
"	Spring	"	.30
"	Jam Washer	"	.15
"	Fulcrum Stud	"	.15
"	Leg (Left) with Screw Attached	"	.60

Starrett Hardened Firm Joint Calipers

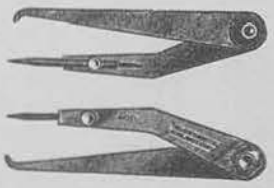
No. 26H Outside

The joint is so made as to be drawn together by means of a screw. The main stud is squared and fitted to one leg, thus preventing the stud from turning when loosening and tightening, and insuring a smooth and uniform friction of more or less tension to suit the user.

Size Ins.	Price Each	Size Ins.	Price Each
3	.60	8	1.15
4	.75	10	1.35
5	.80	12	1.50
6	.90	..	....

No. 27H Inside

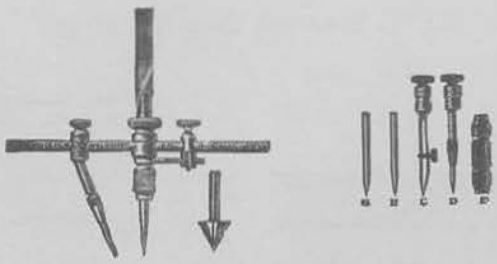
No. 243 Starrett Firm Joint Hermaphrodite Calipers



This tool is made with an offset leg which retains an adjustable round point. Made in 4 and 6-inch sizes only.

Length	Inches	4	6
Price, No. 243	Each	.80	1.00

No. 89 Starrett Universal Dividers



The adjustable scriber holder is reversible and carries either a fine tempered steel point or a pencil lead, held in a split socket by a knurled nut. With the holder turned outward it is possible to work close to shoulders; turned inward, points may be brought close together to scribe the smallest circle. With 4-inch beam a 7½-inch circle and under may be scribed. An auxiliary beam 13 inches long is furnished, with which a 25-inch circle may be drawn. The cone center may be substituted for the regular point, adapting the tool for scribing around a drilled hole.

No.	Description	Each
*89A	Tool with 4-inch Beam and Cone Center, as above	2.50
89S	Without Cone Center and with 89D .075 diam. hole in place of bent arm, also with 89B in place of G	2.40
89B	Needle Points	.30
89C	Pen Attachment	1.80
89D	Extra Straight Point and Socket	.60
89E	Extra 13-inch Beam to Scribe 25-inch Circle	.30
89F	Coupling	.45
89G	Extra Steel Points	.15
89H	Tool and All Attachments	6.00
Case for No. 89A or 89S Extra		1.50
Case for No. 89H, Extra		2.50

*Sent unless otherwise ordered.

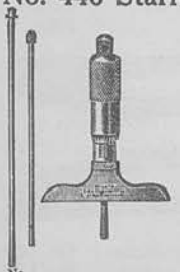
No. 449 Starrett Micrometer Depth Gages

Blade like rod. Micrometer readings. Blade turns under friction so it can be positioned at any angle relative to the base, but in actual use the same as a micrometer, the blade does not turn, moving perpendicularly only.

Blades about .040 thick and under ⅛ inch in width, giving range from 0 to 3 inches. Rods inserted through hole in screw seated by knurled nut.

No. **449A,** 2½-inch Base, Without Ratchet Stop .....Each **10.00**
No. **449A,** 2½-inch Base, With Ratchet Stop .....Each **10.50**
Leather Cases for Above....Each **1.80**
No. **449B,** 4-inch Base, Without Ratchet Stop..Each **12.50**
No. **449B,** 4-inch Base, With Ratchet Stop....Each **13.00**
Leather Cases for Above.....Each **2.20**

No. 440 Starrett Micrometer Depth Gages

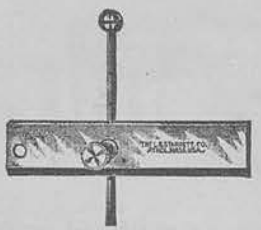


With Three Measuring Rods

This gauge provides measurements of the depths of holes, projections, etc., from 0 to 3 inches by thousandths of an inch. Each gauge has three measuring rods which are inserted through a hole in the screw and brought to a positive seat by a small knurled nut. Base is about 4/10 inch thick and is hardened, ground and lapped.

No.		Each
440A	2½-inch base, without ratchet stop	**9.00**
440A	2½-inch base, with ratchet stop	**9.50**
440B	4-inch base, without ratchet stop	**11.50**
440B	4-inch base, with ratchet stop	**12.00**

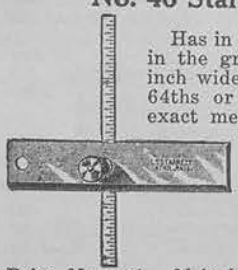
No. 45 Starrett Depth Gauges



The wire is held to a groove by a friction spring inside the nut while adjusting, and may be used close to the end, as well as in the middle of the straight edge. By loosening the nut, the gauge may be neatly folded.

No.	Size Stock Inches	Wire Inches	Price Each
45A	3½	3½	**.90**
45B	6	6	**1.40**
45C	10	6	**1.65**

No. 46 Starrett Depth Gages



Has in place of the round wire to slide in the groove, a 4 or 6 inch scale, $\frac{5}{32}$ inch wide graduated in either 32ds and 64ths or 64ths and 100ths, indicating exact measurements, and may be used separately from the gage. This tool can be used with the scale clamped close to the end, allowing depth measurements to be taken in difficult places.

Packed 1 in a box.

Price, No. **46A,** 3½ inch Stock, 4 inch Scale..Each **1.50**
" No. **46B,** 3½ " " 6 " " . " **1.80**
" No. **46C,** 6 " " 4 " " . " **1.80**
" No. **46D,** 6 " " 6 " " . " **2.10**
" No. **46E,** 10 " " 6 " " . " **2.70**

No. 237 Starrett Depth Gauges

The head of the No. 237 gauge is steel nicely finished and casehardened, 2 inches wide across the base, ⅛ inch thick. The blade which is conveniently held in the groove of the head by a knurled lock nut, is a 6-inch narrow spring-tempered rule which can be used separately from the gauge. Blades graduated in 32nds and 64ths of an inch will be sent unless otherwise ordered, but can also be supplied graduated in 64ths and 100ths. The No. 237M is the same as No. 237 except that the blade is 15 centimeters long, graduated on one side in millimeters and on the other in ½ millimeters.

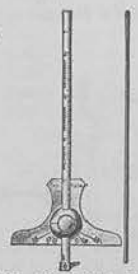
Price, No. **237** Depth Gauge.....Each **1.50**
" " **237M,** " " ..... " **1.50**

No. 236 Starrett Combination Depth and Angle Gauge

Extreme protractor accuracy is not claimed in this construction but for certain classes of work, as a sort of ready reference or for duplicating an angle or chamfer, in combination with a desirable form of depth gauge, it is a convenient tool for measuring. The head of this gauge is 2⅝ inches across the base and ⅛ inch thick, marked with 30, 45 and 60 degree lines. Recess in base to facilitate setting to divisions on rule not shown in cut. Spring tempered rule used is 3/16 inch wide and 6 inches long. Graduated 32nds one side; other side 64ths.

No. **236** Gauge.....Each **2.25**

No. 236-H Starrett Combination Depth Gage and Hook Rule



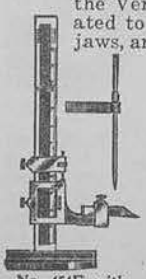
Designed with a special hook rule. Hook adjusts parallel to the base for calipering and the rule can be used independently as a regular hook rule. Reverse hook and use as a depth gage. Rule is graduated 64ths and 32nds. Rod is 9/64 inch in diameter and 6 inches long, used for measuring in small holes where the rule will not enter.

No. **236-HA,** With Hook Rule.....Each **2.75**
No. **236-HB,** With Hook Rule and Rod.....Each **2.95**
No. **236-HC,** Hook Rule Only.....Each **1.50**
No. **236-HD,** Rod Only .....Each **.20**

No. 454 Starrett Vernier Height Gages

10-Inch

Bar is graduated to read by means of the Vernier to 1/1000 in., and is graduated to read from 0 to 10 in. inside of jaws, and from 1 to 10 in. outside of jaws.



No. 454F with Attachment H

No. **454A,** with Attachment C...Ea. **43.75**
No. **454B,** without Attachment..Ea. **40.00**
No. **454C,** Attachment only.....Ea. **3.75**
Plush Lined Case, extra.....Ea. **5.00**

18-Inch

Measurements from 1½ to 18 in. by thousandths of an inch. Graduated on one side only.

No. **454F,** with Attachment H..Ea. **96.00**
No. **454G,** without Attachment..Ea. **90.00**
No. **454H,** Attachment only.....Ea. **6.00**
Wood Case, extra.....Ea. **7.50**

No. 257 Starrett Universal Surface Gages

Has a heavy base, grooved through the bottom and end, adapting it for use on or against circular work as well as flat surfaces. Spindle may be set upright or at any angle, or turned so as to work under the base.

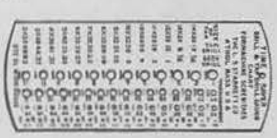
Four gage pins in the corners of the base adapt it to be used as locomotive guide liner, and make it more convenient than other gages for many uses.

Snug and head carrying the scriber are so made that when nut is loosened all may be freely moved to any position and by friction springs retained in place.

No.	Base	Spindle	Price Each
No. 257A	3 in. Base,	9 in. Spindle	4.75
No. 257B	3 " "	9 and 12 in. Spindles	5.25
No. 257C	3½ " "	12 in. Spindle	5.85
No. 257D	3½ " "	12 and 18 in. Spindles	6.50

No. 185 Starrett Tap and Drill Gages

"Time Savers"



Approximately 5/64-inch thick, 2 5/16 inches wide and 6¼ inches long. Enables one to select at once right sized drill to suit machine screw taps most commonly used.

Price, No. **185**...Each **2.40**

Nos. 281 and 282 Starrett American Standard Wire Gages

Numbers are those of the American Standard Wire Gage.

No. 281 takes in sizes 0 to 36 inclusive.

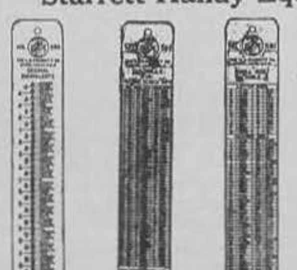
No. 282 takes in sizes 5 to 36 inclusive.

The decimal equivalents of each number are stamped on the back.

Each gage has black finish and is carefully tested after hardening. Packed 2 in a box.

Price, No. **281** ....Each **3.00**
" No. **282** .... " **2.50**

Starrett Handy Equivalent Tables



Made from spring steel. These ready reference tables are but .012 inch thick, 1¼ inches wide, and about 6 inches long. With the black markings and polished surface they are very distinct.

No. 589 is a table of decimal equivalents, No. 590 of tap drills for machine screws, and No. 591 a drill size table.

No. **589** ....Each **.75**
No. **590** ....Each **.75**
No. **591** ....Each **.75**

Starrett Ready Reference Tables

With rule. Spring steel. Has decimals, fractions and 6-inch rule with 32ds divisions on one side, and tap and drill data and 6-inch rule with 64ths divisions on the other. No. **588**....................Each **.90**

No. 246 Starrett Planer and Shaper Gages

By setting this gage with a caliper, micrometer or surface gage and bringing the planer tool into contact with it, the first cut may be absolutely relied upon.

No. **246**, Range ¼ to 8¼ inches........Each **5.00**

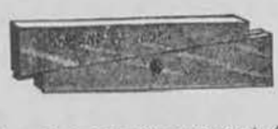
No. 494 Starrett Toolmakers' Buttons

These buttons are hardened, ground and lapped square with the end to sizes of .300, .400, .500 and 1 inch. On any hole or series of holes where positive accuracy must be had in relation to each other or from given points, as in drill jigs, die and fixture work, toolmakers' buttons should be used. These buttons are nearly always used with a vernier height gauge, although micrometers may be used.

No.	Size Inches	Per Set	No.	Size Inches	Per Set
494A	.300x½	**3.50**	**494C**	.500x ½	**3.50**
494B	.400x½	**3.50**	**494D**	1.000x1	**8.00**

Taps (.125-40) to use with A, B and C Sets. Each **.35**
Taps (.250-24) to use with D Set..........Each **.45**

No. 154 Starrett Adjustable Parallels



Convenient for use in connection with milling, planer and shaper vises, taking the place of the large number usually required, also for leveling up work on a planer, drill press, etc. Can be adjusted and locked to micrometer measurements from ⅜ to 2¼ inches.

No.	Lenght Inches	Thickness Inches	Capacity Inches	Price Each
154A	1¾	9/32	⅜ – ½	**.90**
154B	2⅛	9/32	½ – 11/16	**1.10**
154C	2 11/16	9/32	11/16 – 15/16	**1.20**
154D	3 9/16	9/32	15/16 – 1 5/16	**1.50**
154E	4 3/16	9/32	1 5/16 – 1¾	**1.80**
154F	5 1/16	9/32	1¾ – 2¼	**2.10**

Starrett Little Giant Jack Screws

Designed for tool room use, for leveling up work on planer bed or under upright drill, setting up machinery, etc. No. 190A, 1¼-inch diameter at base, has range from 2¼ to 3⅝ inch. With the 2 extension bases, B and C used singly or together a reach from 2¼ to 6½ inches is obtained. No. 191, 1-inch diameter at base, has a range from 1½ to 3½ inches.

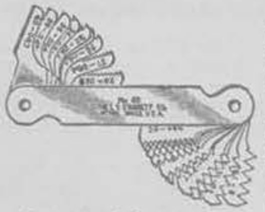
	Price, Each						
		Extension Bases					
No.	A Jack	B	C	E	D Extra Screws	F Extension V-Base	Complete
190	**.90**	**.25**	**.20**	**.25**	**.20**	**.20**	**2.00**
191	**.90**	**.25**	**.20**	**.25**	**.20**	**.20**	**2.00**

No. 67 Starrett Scriber

All parts are interchangeable. The knurled sleeve is nickeled.

Price, No. **67, Complete**....................Each **.60**
" " **67, without Long Point**.............. " **.45**
" " **67, Long Bent Point**................. " **.20**
" " **67, Straight Point or Short Bent Point.** " **.15**

No. 40 Starrett Screw Pitch Gages



This gage has 22 pitches, viz: 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40.

Free end of the leaf is made narrow, permitting it to be inserted in a small nut so that either outside or inside threads may be compared.

Screw pitch gages are stamped on each leaf with decimals to show the double depth of the thread, which equals the depths of the threads on the two sides of a tap having the same pitch. This enables the workman to determine what size of drill must be used to leave a full V-thread for a tap having the same pitch.

Price, No. **40**........................Each **1.25**

No. 4 Starrett Screw Pitch Gages

24 Pitches, 4 to 30

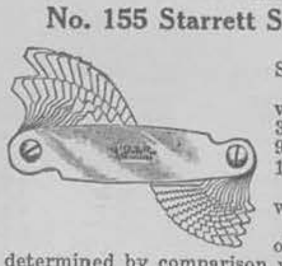
Has the following pitches; 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30. The teeth are sharp and clean cut. Like the No. 40 it can be used inside of a nut as well as outside of a screw or bolt.

The No. 4 Pitch Gage is also a convenient and reliable tool to use as a 60-degree center gage and gage to test the grinding of either an inside or outside threading tool.

These gages are packed 1 gage to a box, 6 boxes to a carton.

Price, No. **4** ....Each **1.50**

No. 155 Starrett Screw Pitch Gages



For U. S. and S. A. E. Standards.

Has 27 pitches, 2¼ to 28; viz: 2¼, 2⅜, 2½, 2⅝, 2¾, 2⅞, 3, 3¼, 3½ 4 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 24 and 28.

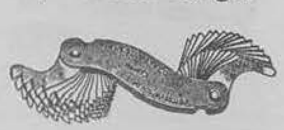
Also has a center gage with coarse and fine notch.

If not known, the pitch of a thread may be readily determined by comparison with the standards on this pitch gage. On the edge of the thin leaves there are teeth corresponding to standard thread sections, and by placing leaves successively over the thread, some one leaf will coincide or mesh with the thread, when the pitch can be read from the stamping itself.

Price, No. **155** ....Each **2.00**

Starrett Positive Stop Thread Gauges

This form of gauge has a positive stop which holds the blade in a fixed and convenient position for use. The number of pitch is stamped on the right side of each blade.



No. 473

Has 30 pitches, V thread, from 6 to 60, as follows: Nos. 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20 and 22 in one end of the case. Nos. 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 48, 50, 56 and 60 in the other.

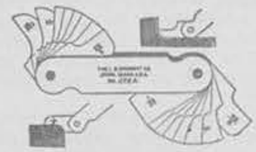
Price, No. **473**..............................Each **1.80**

No. 474

Has 30 pitches, V thread, from 26 to 82, as follows: Nos. 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50 and 52 in one end of the case. Nos. 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80 and 82 in the other.

Price, No. **474**..............................Each **1.80**

No. 272 Starrett Fillet or Radius Gauges

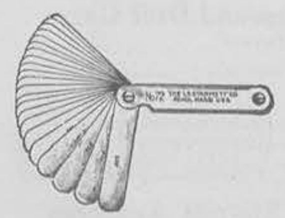


This gauge affords means of obtaining the radii of fillets, corners, etc., as shown by the illustration. Each blade is stamped with the radius in 64ths, the external being on one side and the internal on the other. It can be used in any position or at any angle, the formation allowing it to be used up to a shoulder, and for duplicating sample pieces. Size A has 16 leaves, with radii from 1/32 to 17/64 inch inclusive by 64ths. Size B has 16 leaves, with radii from 9/32 to 33/64 inch inclusive, by 64ths.

Price, No. **272A** Gauge........................Each **1.25**

" " **272B** " .... " **1.80**

No. 72 Starrett Thickness Gauges



This gauge has 22 leaves, varying in thickness by thousandths, running from .004 to .025. The thickness of each leaf is designated by the number upon it. Each leaf may be used singly or in combination with others, and any thickness in thousandths within their limits may be quickly obtained. The leaves fold, within the case, which is 2¾ inches long, a convenient size to carry in the pocket.

Price, No. **72**..............................Each **2.50**

No. 78 Starrett Thickness Gages

Has six leaves, .0015, .002, .003, .004, .006 and .015 thick. With one leaf or in combination with others the range by thousandths is .0015 to .031. With eyelet to carry on ring.

No. **78**............Each **.50**

No. 172 Starrett Thickness Gages

Popular with machinists and tool makers in gaging narrow slots, as well as with the motor mechanic. Size A has 9 leaves 3 1/16x½ inches. Size B, 8 leaves, 4½x½ inches. Size C, 8 leaves, 6x½ inches. Size D, 8 leaves, 9x½ inches. Size E, 8 straight leaves, 12x½ inches. Leaves of sizes B and C are tapering, of D, straight, and of size A, either straight or tapering, as desired.

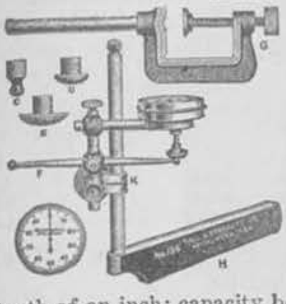
	Price Each
172A; .0015, .002, .003, .004, .006, .008, .010, .012, .015	**1.50**
172B; .002, .003, .004, .006, .008, .010, .012, .015	**2.50**
172C; .002, .003, .004, .006, .008, .010, .012, .015	**3.00**
172D; .002, .003, .004, .005, .006, .008, .010, .015	**3.25**
172E; .002, .003, .004, .005, .006, .008, .010, .015	**4.25**

No. 806 Starrett Thickness Gage Holders

For automobile mechanics. By means of it a "feeler" defective from use can be snipped and continued to be withdrawn until entirely used up. Holder is 5¼x3/16x3/32 in. thick. Dull nickel finish. Eyelet feature at end. 6 in. leaves recommended.

Price, No. **806** Holder only..............Each **.50**

No. 196 Starrett Universal Dial Test Indicators

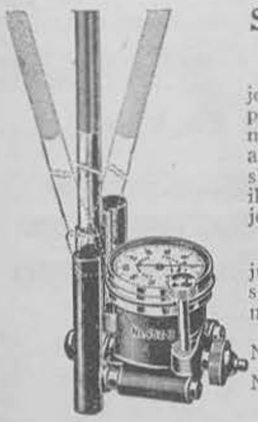


Simple, reliable, easily read and very sensitive. May be adjusted to any angle. The slightest pressure upon contact point produces a movement of the hand on the dial. Circumference of dial divided into 100 equal spaces, each representing a movement of the contact point of one-thousandth of an inch. One revolution of the hand indicates one-tenth of an inch; capacity being two-tenths. With contact points D and E any exterior surface may be tested, as in cutters, racks, etc., whereas contact C should be used only on plain surfaces. By turning the knurled rim of the adjustable dial the 0 mark may be moved to any point desired in relation to the hand.

Clamp G permits attaching the indicator to large lathe and planer tools, milling arbors, etc. Attachment F adapts it for use inside of holes, etc.

No.		Price Each
196A	Indicator with all Attachments, as shown	13.50
196B	" only with 3 Contact Points, C, D and E	9.00
196F	Hole Attachment	1.80
196G	Clamp 1 5/16 in. capacity, flat or round	.90
196H	Tool Post Holder, ⅜x⅜x6 in., with Upright Spindle	.90
196K	Sleeve complete with 5/16-inch hole for 9-inch Surface Gage Spindle	.90
196L	Sleeve complete with ⅜-inch hole for 12-inch Surface Gage Spindle	.90

Starrett Cylinder Gages



Combination rigid and toggle joint handle permits universal application. The handle can be made rigid in a perpendicular or angular position, or it may, by a slight turn of the handle, be readily transformed to a universal joint with a wide sweep.

Locking mechanism clamps adjustable contact points which are synchronized with indicating needle.

No. **452B** ....Each **17.50**

No. **452MB** (reads in 1/100 mm.) ....Each **17.50**

No. 192 Starrett Vibrometers

A simple instrument for measuring the amplitude of vibration of steam or water turbine units or other similar machinery rotating at high speed and where vibration may hamper efficiency. The amplitude readings obtained at or near the bearings of a rotating machine are a significant indication of the existing dynamic balance of its rotor.

The dial gage is removable to permit its use in numerous other ways independent of the mounting.

No. **192** Vibrometer, with Case.........Each **21.00**

Models 711 Starrett Last Word Test Indicators

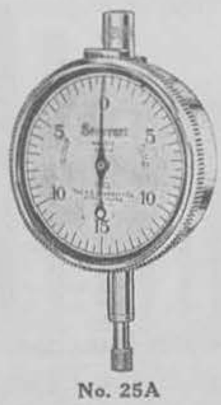
Model 711-C

Model 711-F

For testing alignment of drill press table with spindle; test the truth of lathe centers, arbors, cutters, gears, etc. Can be used with either gooseneck or universal shank.

Model	With Clamping Attachment and Case Each	Goose Neck Shank Extra Each	Universal Shank Extra Each	Magnifying Powers	Range Ins.	Graduated Ins.
Friction Joint Contact Point—Fixed Dial						
711-B	**14.00**	**1.00**	**1.50**	60	.040	1/000
Friction Joint Contact Point—Adjustable Dial						
711-C	**14.00**	**1.00**	**1.50**	110	.025	1/000
Fixed Contact Point—Adjustable Dial						
711-D	**13.00**	**1.00**	**1.50**	95	.025	1/000
711-D-10	**35.00**	Furnished	**.50**	300	.024	10/000
Ratchet Joint Contact Point—Adjustable Dial Reversible Action						
711-F	**16.50**	**1.00**	**1.50**	90	.030	1/000

Starrett Dial Indicators

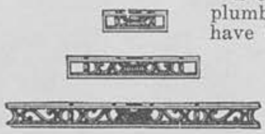


No. 25A

Attachable to tool spindles, machinery, production jigs and fixtures. Essential in inspection work and for mountings where numerous measurements are involved. Stainless steel. and chromium plated parts. All gears, the rack, dowels, screws, stem bushings, etc., are stainless steel. Die cast back cover with black crackle finish. Black readings upon a white background make the dials easily legible. Bearings are either plain or genuine sapphire jewels as specified. Sent with lug on center and .275 stem and with ¼ inch hole in lug unless otherwise ordered.

No.	**25A**	**25B**	**25C**	**25D**	**25E**
Reading	0-15-0	0-25-0	0-50-0	0-30	0-50
Grad., Ins.	.0005	.0005	.001	.0005	.0005
Range, Ins.	.300	.300	.300	.300	.300
Hand Rev.	10	6	3	10	6
Plain ......Each	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**
Jeweled ....Each	**12.50**	**12.50**	**12.50**	**12.50**	**12.50**
No.	**25F**	**25G**	**25H**	**25T1**	**25T2**
Reading	0-100	0-20-0	0-40	0-5-0	0-10
Grad., Ins.	.001	.0005	.0005	.0001	.0001
Range, Ins.	.300	.300	.300	.020	.020
Hand Rev.	3	7½	7½	2	2
Plain ......Each	**10.00**	**10.00**	**10.00**	**27.50**	**27.50**
Jeweled ....Each	**12.50**	**12.50**	**12.50**	**30.00**	**30.00**

No. 132 Starrett Bench Levels



Bench level with double plumbs. 12 and 24-inch sizes have concave ends.

Size In.	Price Each	Size In.	Price Each
4	1.65	12	2.10
6	1.80	18	3.00
9	2.00	24	3.50

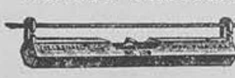
Starrett Improved Levels

In addition to the regular parallel vial, the bases have a cross level, for the shape of a level glass is such that, though true as adjusted on a flat surface, it will not be reliable when canted sidewise. The value of the crosslevel is not only to test the truth of shafting but other surfaces which tend to throw the level base into a canting position. The base of this level has concave groove running through the length of it for testing shafting. No. 97 has plain vial; No. 98 has ground and graduated vial.

Length Inches	Price Each No. 97	Price Each No. 98	Length Inches	Price Each No. 97	Price Each No. 98
6	2.25	4.25	*12	4.00	7.00
8	2.75	5.00	**18	6.00	10.00

*With plumb. **With double plumb.

No. 108 Starrett Aluminum Line Levels



Used in laying foundations, tile pipe, working ditches, determining grades, etc. Can be used also as a surface level. Construction of the slot prevents it dropping off the line when in use. Luminous level glass with yellow fluid. 3 in. long.

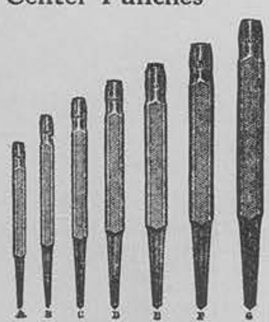
Price, No. **108** . . . . Each **.50**

No. 264 Starrett Center Punches

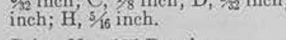
Made in seven sizes ranging in length from 2⅞ to 5 inches. All sizes 12 in a box, except G, six in a box.

Size No.	Diam. at Points, In.	Price Each	Price Per Doz
A	1/16	.25	3.00
B	5/64	.25	3.00
C	3/32	.25	3.00
D	1/8	.25	3.00
E	5/32	.35	4.20
F	3/16	.35	4.20
G	1/4	.40	4.80

Assort. A, B, C, D. . . . **3.00**



No. 565 Starrett Drive Pin Punches



Made of good quality steel, neatly shaped, hardened and polished, with knurled centers. Length of each size, 4 inches. Diameter of points: A, 1/16 inch; B, 3/32 inch; C, 1/8 inch; D, 5/32 inch; E, 3/16 inch; F, 7/32 inch; G, 1/4 inch; H, 5/16 inch.

Price, No. **565** Punch . . . . per Doz. **2.40**
" " **565** " . . . . Each **.25**
" " **565**, Set of Eight (One of each Size) in Round Wooden Box . . . . per Set **1.80**

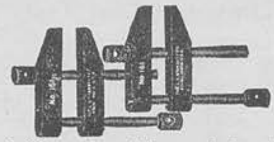
No. 800 Starrett Nail Sets

With large square head and round grip. Machined from ⅜ inch bar stock. Length 4 inches, heads and points are polished.

No.	800A	800B	800C	800D	800E
Point, Inches	1/32	1/16	3/32	1/8	5/32
Per Dozen	1.75	1.75	1.75	1.75	1.75

No. **800** Assorted . . . . Per Dozen **1.75**

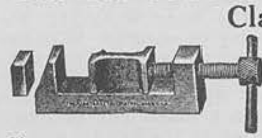
No. 161 Starrett Toolmakers' Parallel Clamps



Made of steel, case hardened, useful for holding small work together in tapping, drilling, etc. When ordering jaw only, state length desired.

No.	Opening Jaw, Inches	Length Jaw Inches	Price per Pair	No.	Opening Jaw, Inches	Length Jaw Inches	Price per Pair
161AA	¾	1⅝	1.40	161C	2¼	3	2.40
161A	1¼	2	1.70	161D	2¾	4	3.00
161B	1¾	2½	2.00	161E	3½	5	4.60

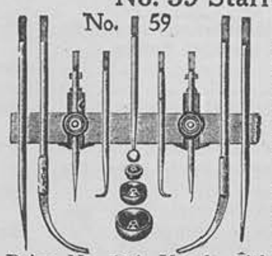
No. 160 Starrett Toolmakers' Steel Clamps



Made from drop forgings, case hardened; have take-up blocks to slip on and off end of screw.

Size . . . . Inches	1	2
Price, No. **160** . . . . per Pair	2.50	3.00

No. 59 Starrett Trammels



May be fastened to any size beam from ¾ to 1⅝ inches wide, and any desired thickness, giving stiffness according to length and adapting it for large or small work.

Auxiliaries designed to go with these heads are illustrated; inside and outside caliper legs, extra points, ball points.

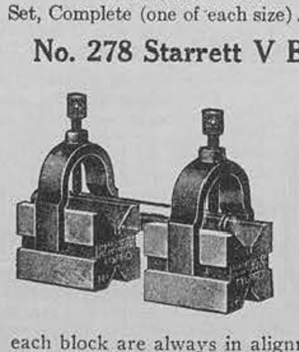
Price, No. **59A** Heads with 1 pair points . . . Each **2.40**
" No. **59B** Balls and Holder . . . . per Set **1.50**
" No. **59C** Small Caliper Legs . . . . . per Pair **.60**
" No. **59D** Large Caliper Legs . . . . . " **1.00**
" No. **59E** Large Divider Points . . . . " **.60**
" No. **59F** Set complete . . . . Each **5.75**

No. 162 Starrett Pin Vises

Have hardened jaws with chucks that will hold firmly. Hole extends through full length of knurled handle. Small handle permits rapidly rotating between thumb and finger when filing small work.

Price, No. **162A** (0 to .040-in. capacity) . . . . . . Each **.65**
" " **162B** (.030 " .062 " ") . . . . . . " **.65**
" " **162C** (.050 " .125 " ") . . . . . . " **.65**
" " **162D** (.115 " .187 " ") . . . . . . " **.80**
Set, Complete (one of each size) . . . . " **2.75**

No. 278 Starrett V Blocks and Clamps



An accurate set of V blocks used with the surface plate, angle-iron, etc. Milling and grinding work set in these V's will be held fast and true. Hardened and ground. Each block is about 1¼ inches square, 1⅝ inches long and has a capacity of 1 inch in diameter. The blocks are numbered in pairs so that the V's in each block are always in alignment. The V's are ground central, parallel and square with the ends and sides. Sold in pairs only.

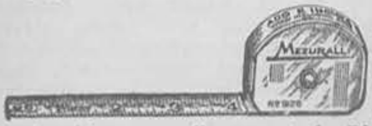
No. **278** Blocks and Clamps . . . . per Pair **6.75**

Lufkin Tools

Our listing of Lufkin Tools on the following pages does not cover all the tools available in this line.

Complete Lufkin Catalog Sent Upon Request.

No. 926 Lufkin Mezurall Tape Rules



For inside and outside, height and depth gage, flexible and rigid measurements. Nickel plated blade, ½ inch wide, manually operated. Blade remains set at any length widthdrawn, will not spring back into case. Adjustable end hook allows accurate measurements, either hook or butt end. Nickel plated case 2 inches wide fully encloses blade. Will stand unsupported in three measuring positions.

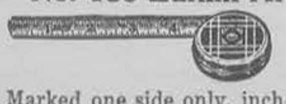
No. **926**, 72 inch, blade marked one side, both edges, inches to 16ths; first 6 ins. to 32nds.....Each **1.25**
No. **926B**, 72 inch, blade marked both sides, both edges, otherwise same as No. 926.............Each **1.50**
No. **928**, 96 inch, blade marked one side, both edges, inches to 16ths; first 6 ins. to 32nds.....Each **1.65**

No. X-686 Lufkin Extension Tape-Rules

Flexible-rigid. Manually operated. Nickel plated blade and case. Blade ⅝ inch wide. Blade marked one side only inches to 16ths both edges. Numbered lower edge for regular measurements, upper edge for inside measurements.

No. **X686**. 72 inches long...............Each **2.00**

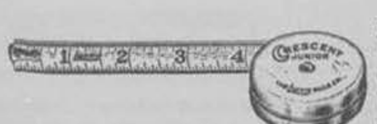
No. 186 Lufkin Aristocrat Tape Rules



6 foot measure. Manually operated. Blade 7/16-inch wide, stiffened by concave forming, yet will flex. Marked one side only, inches to 16ths both edges, first six inches upper edge to 32nds. Hook at first end. Stainless case, 1⅝ inches in diameter.

No. **186** Aristocrat Tape Rule............Each **1.50**

Crescent Junior Tape-Rules



Automatic wind. Nickel plated case. Rule blade of super-quality tempered steel, stiffened by special forming. Dark figures and lines in sharp contrast. Zero falls at inside of solid hook Blade will flex around and accurately measure circle? and odd shapes. Spring wind with ratchet stop. Nicke plated case. Blade is manually withdrawn and automatically returned by pressing push button.

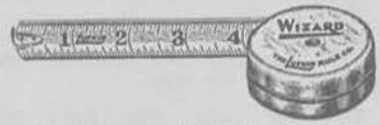
No. **1696**. 72 inches long. Marked consecutive inches and 16ths. Wt. per doz. 3½ lbs........Each **1.50**

No. 696 Lufkin Crescent Tape-Rules

Automatic wind. Nickel plated case. Rule blade is of super quality tempered steel, stiffened by special forming. Unsupported it may be projected like a rule to any wall, etc., or into an opening. It will also flex around and accurately measure circular or round cornered objects. Blade has dark background with lines and figures in sharp contrast. Smooth-working spring winding device, with ratchet stop. Manually withdrawn, automatically returned. Sliding end hook.

No. **696**, 72 In. Long, Marked inches to 16ths, both edges (First 6 in. upper edge to 32nds)..Each **2.50**
No. **696D**, 6 Ft. Long, Marked ft., 10ths and 100ths of ft. upper edge. Ft., in. and 16ths lower edge ....Each **2.75**

No. 686 Lufkin Wizard Tape-Rules



Rule blade is made of tempered steel, stiffened by special forming. Manually withdrawn and returned. Blade is ⅝ inch wide and has end hook. Can be used as a rigid rule, or a flexible tape. Will flex around corners. Nickel plated case is 2 inches in diameter. When rule blade is extended, case will stand on edge, allowing blade to lie flat on work.

No. **686**, 72 In. Long, Marked inches to 16ths, both edges (First 6 in. upper edge to 32nds) ....Each **1.00**

No. **686D**, 6 Ft. Long, Marked ft., 10ths and 100ths of ft. upper edge. Ft., in. and 16ths lower edge ....Each **1.25**

Lufkin Wizard Jr. Steel Tape Rules

Steel rule blade ½ in. wide and stiffened by special forming. Unsupported it can be projected like a rule, yet it will flex and accurately measure circles and odd shapes.

Blade nickel plated, withprominent dark markings and figures. Nickel plated pocket size case 1⅞ in. in diameter. Blade manually withdrawn and returned. Will remain set at any distance. Will not spring back into case. With blade extended case will stand on edge, so blade lies flat on work. Solid end hook. Marked one side only, inches to 16ths, both edges. (First 6 inches upper edge to 32nds.)

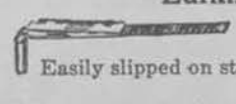
No. **1686** Steel Tape Rules. 72-Inch..........Each **.85**
No. **1688** Steel Tape Rules. 96-Inch..........Each **1.40**

Pocket Steel Tapes

Round edge nickel plated cases, spring wind, center stop, with one quarter inch tape, marked one side only; inches and 16ths.

No.	143	145	146	148
Length...Ins.	36	60	72	96
Wgt. Doz. Lbs.	1	1¼	1¼	1½
Each..........	.95	1.25	1.35	1.90

Lufkin Tape Hooks



Enables one man to take measurements unassisted. Easily slipped on steel tapes with standard end ring.

No.	Each	For Tapes Inches	Wt. per Doz., Oz.
551	.80	¼	8
552	.80	⅜	11
552½	.90	½	22

Reliable Steel Measuring Tapes

Metal lined genuine leather cases, double folding flush handle, opened by pressing on opposite side. Handle has extension fingerhold which affords a firm grip when winding in tape. Nickel plated trimmings Measurements guaranteed accurate.

With three-eighth inch tapes, marked feet, inches and eighths, one side only.

No.	**200**	**201**	**203**	**204**	**205**	**206**
Length ......Feet	25	33	50	66	75	100
Weight, Each ..Oz.	9	10	13	15	18	21
Price ....Each	**6.10**	**7.00**	**9.50**	**12.00**	**13.80**	**16.50**

Challenge Steel Measuring Tapes

Metal lined genuine leather cases, nickel plated trimmings, folding flush handle, opened by pressing pin on opposite side. Measurements guaranteed accurate.

With three-eighth inch tapes marked feet, inches and 8ths one side only.

No.	**260**	**261**	**263**	**264**	**265**	**266**
Length ...Feet	25	33	50	66	75	100
Wt., Each..Oz.	8	9	11	14	17	21
Each	**5.40**	**5.90**	**6.60**	**8.30**	**8.60**	**11.30**

Challenge Junior Steel Measuring Tapes

Metal lined genuine leather cases, nickel plated trimmings, folding flush handle, opened by pressing pin on opposite side. Measurements guaranteed accurate.

With one-quarter inch tapes, marked feet, inches, and 16ths, one side only.

No.	**1260**	**1263**
Length ....Feet	25	50
Wt., Each ....Oz.	4	7
Each	**5.20**	**6.30**

Lufkin Banner Steel Tapes

Instantaneous readings. Nubian finish. Line of highest grade tape steel, ⅜ inch wide. Case of mottled black imitation "Keratol" material. Has plated steel liner. Trimmings are nickel plated. Folding flush handle is opened by pressing pin on opposite side. Measurements are accurate.

Marked feet, inches and 8ths of inches, one side only.

Number	**550**	**553**	**555**	**556**
Length, feet	25	50	75	100
Weight each, ounces...	7	11	17	19
Each	**4.20**	**5.20**	**6.80**	**8.60**

Ass Skin Tapes

Sheet steel cases, brass bound and sides handsomely cream enameled. Folding handles. With one-half inch cotton tape, well coated. Marked feet, inches and quarter inches, one side only.

No.	**710**	**711**	**713**	**714**	**715**	**716**
Length...Feet	25	33	50	66	75	100
Wt., per Doz. ....Lbs.	2¾	3¼	4	5¼	5¾	7
Per Doz....	**6.00**	**6.50**	**7.90**	**9.80**	**11.80**	**15.70**

Rival Steel Measuring Tapes

Nickel plated steel cases, folding flush handle, opened by pressing pin on opposite side. Cases have knurled edges, which afford a firm hold when winding in tape. Measurements guaranteed accurate.

Marked one side only, Nos. 240 to 246 in feet, inches and 8ths of inches; Nos. 240D to 246D in feet, 10ths and 100ths of feet.

No.	**240**	**241**	**243**	**244**	**245**	**246**
No.	**240D**	**241D**	**243D**	**244D**	**245D**	**246D**
Length .....Feet	25	33	50	66	75	100
Wt., Each....Oz.	8	9	11	14	15	20
Each	**5.00**	**5.30**	**6.00**	**7.60**	**8.00**	**10.30**

No. 540 Lufkin "Universal" Steel Tapes

A ⅜-inch wide, standard weight, steel tape, clearly marked. Metal-lined case is covered with mottled, black "Keratol", a good looking durable material, and has a 3/16-inch wide, flat flush, nickel plated edge band. Folding flush handle opened by pressing pin on opposite side. All trimmings are nickel plated. "Nubian" finish.

Marked feet, inches and 8ths of inches, one side only. Packed one in a box.

No.	**540**	**543**	**545**	**546**
Length ....Feet	25	50	75	100
Weight ......Ounces	6	10	15	17
Each	**3.10**	**3.50**	**4.80**	**5.90**

Lufkin Junior Metallic Tapes

Metal lined genuine leather cases, nickel plated trimmings, folding flush handle, patent threader makes removal of old tape and attaching a new one a simple operation. 7/16ths inch linen tape with metallic warp, marked one side only in feet, inches and 8ths. One in a box.

No.	**660**	**663**
Length, feet	25	50
Wt., each, ozs.	6	8
Each	**4.10**	**5.10**

Lufkin Metallic Woven Tapes

Genuine leather cases, folding handles, nickel plated trimmings. Tape ⅝-inch wide, made of best woven linen with metallic warp.

Marked one side only in feet, inches and half inches.

No.	**500**	**501**	**503**	**504**
Lth. ....Ft.	25	33	50	66
Wt., Ea....Oz.	9	11	15	18
Each	**3.90**	**4.60**	**5.50**	**6.40**
No.		**505**	**506**	**507**
Lgth. ......Ft.		75	100	150
Wt., Ea.....Oz.		21	24	41
Each		**7.00**	**8.70**	**15.20**

Lufkin "Red End" Folding Rules

Lock Joints

Marked consecutive inches to 16ths, both edges of both sides. Finished in cream and white with red ends. Flexible 6 inch folds. Joints and strike plates are of solid brass.

No.	Per Dozen	Length Feet	Wt. Doz. Lbs.	No.	Per Dozen	Length Feet	Wt. Doz. Lbs.
Cream Enameled				**White Enameled**			
054	5.20	4	2¼	064	5.60	4	2
055	6.40	5	2¾	065	6.90	5	2½
056	7.20	6	3½	066	7.80	6	3
058	10.00	8	4½	068	10.80	8	4

Lufkin Folding Steel Rules

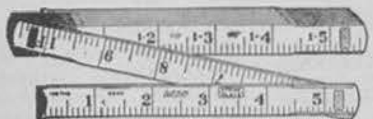
¾ Inch Wide   Stop Joints

Tempered steel. ¾ inch wide, 1/32 inch thick. With patent stop joints. Marked one edge of both sides inches and 16ths.

Packed ½ dozen in a box.

No.	Each	Length Ft.	Joint Ins.	Weight, per Doz., Lbs.
1174	2.60	4	6	4½
1175	3.30	5	6	5½
1176	3.90	6	6	6½

No. 066D Lufkin "Red End" Rules



For engineers, etc. Marked feet, 10ths, 100ths one side, feet, inches, 16ths other side. Brass lock joints and strike plates. White enamel finish. Red ends.

No. **066D** 6 feet long. Wt., doz., 3½ lbs.......per Doz. **7.80**

No. 066F Lufkin "Red End" Rules

Lock Joints

Inside markings. Strike plates. Solid brass trimmings. 6 inch folds. ⅝ inch wide. Flat markings. Marked consecutive inches to 16ths, both edges of both sides. White Enamel.

No. **066F.** 6 feet long. Wt., doz., 3½ lbs..per Doz. **7.80**

Folding Extension Rules

For Inside Measurements

For regular measurements a most convenient rule. Particularly designed for taking inside measurements of openings such as door and window frames, for boilers and other such measurements as are difficult to take with the ordinary folding rule. This rule, however, also perfectly serves every purpose of a common rule in ordinary measuring, and is extra durable. It will appeal especially to carpenters, architects, contractors, inspectors, automobile workers and others.

Marked consecutive inches to 16ths, both sides. Brass slide marked inches to 16ths.

No.	Per Dozen	Type	Length Feet	Wt. per Doz. Pounds
X8536	14.40	Boxwood	6 (12 fold)	4¾
X-46	12.00	Maple	6 (12 fold)	4½

Spring Joint Rules

Rivet Joints

Flexible, 6 inch folds, ⅝ inch wide, brass plated trimmings. Marked consecutive inches to 16ths, both sides.

	Cream Enameled				White Enameled		
No.	Lgth. Feet	Wt. Doz. Pounds	Price per Dozen	No.	Lgth. Feet	Wt. Doz. Pounds	Price per Dozen
8523	3	1½	3.20	8623	3	1½	3.60
8524	4	2	4.20	8624	4	2	4.60
8525	5	2½	4.90	8625	5	2½	5.40
8526	6	3	5.40	8626	6	3	6.00
8528	8	4	7.80	8628	8	4	8.60

Aluminum Rules

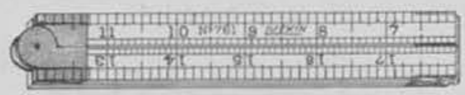
Six inch folds, 9/16 inch wide. Rust-proof. Light weight.

The aluminum rule occupies a position between folding wood and steel rules, both as regards weight and durability. It is especially popular in the building trades, and in mills, shops, etc., where folding wood rules are often broken.

Marked consecutive inches to 16ths, both sides.

No.	Length Feet	Weight Dozen Pounds	Price per Dozen
1204	4	3	10.60
1205	5	3¾	13.20
1206	6	4	15.60

Boxwood Rules

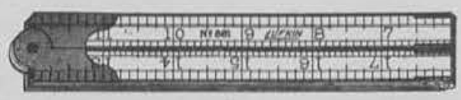


No. **761**

Boxwood Rule. Two Foot.

Four Fold. Unbound... Per Doz. **$9.00**

One inch wide. Square joint. Edge plates.
Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales.
Wide range of markings. Edge plates add strength.
Packing: ½ doz. per box. Wt. per doz., 1½ lbs.



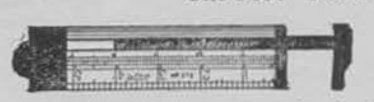
No. **881**

Boxwood Rule. Two Foot. Four Fold.
Full Bound .... Per Doz. **$15.60**

One inch wide. Arch joint. Marked: 8ths, 10ths, 12ths and 16ths inch, and drafting scales. Both edges brass bound and rule having arch joint, is most attractive as well as sturdy.
Packing: ½ doz. per box. Wt. per doz., 2½ lbs.

No. 372 Boxwood Caliper Rule

One Foot—Two Fold

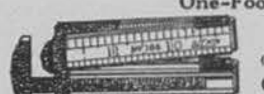


1⅜-inch wide. Square joint with bit plate, protecting wood from closing pin. Marked: Rule, 8ths, 10ths, 12ths and 16ths inch; Caliper, 16ths and 32nds inch.

No. **372** (36½)..................per Dozen **12.10**

Boxwood Caliper Rules

One-Foot Four Fold



1 inch wide. Arch joint. Marked: Rule, 8-10-12-16ths inch. Caliper, 16-32nds inch.

No. **386** (32). Edge Plates.........per Dozen **14.40**
No. **388** (32½). Full Bound ....per Dozen **18.40**

No. 2204R Lufkin Spring Tempered Rules

Showing Readable Graduations

Showing End Graduations

Approximate Thickness $\frac{1}{64}$ inch

No. 4 Graduation, 8ths, 16ths, 32nds, 64ths

Length, inches	1	2	3	4
Width, inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$
Price, No. **2204R**, each	**.30**	**.45**	**.60**	**.75**
Length, inches	6	9	12	18
Width, inches	$\frac{3}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, No. **2204R**, each	**.90**	**1.35**	**1.65**	**2.60**
Length, inches	24	36	48	
Width, inches	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	
Price, No. **2204R**, each	**3.25**	**7.00**	**10.00**	

Packed: Rules 1 to 12 inches, six in a box; others, one in a package.

No. 2604-R Lufkin Semi-Flexible Rules

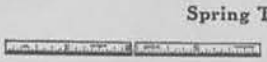
No. 4 Graduation, 8ths, 16ths, 32nds, 64ths. Lengths, 2 to 12 inches. All have Readable Graduations.

Packed: Six in a box.

Length, inches	2	3	4	6	9	12
Width, inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Price, No. **2604R**, each	**.45**	**.60**	**.75**	**.90**	**1.35**	**1.65**

No. 2310 Lufkin Narrow Rules

Spring Tempered



Approximate width $\frac{5}{16}$ inch. Thickness $\frac{3}{64}$ inch. No. 10 Graduation, 32nds and 64ths. Graduated one edge of each side. Packed: Six in a box.

Length, inches	4	6	9	12
Price, No. **2310**, each	**.75**	**.90**	**1.35**	**1.65**

No. 2110 Lufkin Flexible Rules

No. 10 Graduation, 32nds and 64ths, one side only. Rules 12-in. and under, ½-in. wide; all others ¾-in. wide.

Packed: Rules 1 to 12 inches, six in a box; others, one in a package.

Length, inches	1	2	3	4
Price, No. **2110**, each	**.30**	**.45**	**.60**	**.75**
Length, inches	6	9	12	18
Price, No. **2110**, each	**.90**	**1.35**	**1.65**	**2.60**
Length, inches	24	36	48	
Price, No. **2110**, each	**3.25**	**7.00**	**10.00**	

No. 2110R Lufkin Flexible Rules

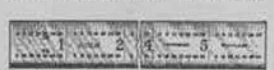
With Readable Graduations

Graduated one side 16ths upper edge and 32nds lower edge; other side, 64ths lower edge.

Made in 6-inch length only. Packed: Six in a box.

Price, No. 2110R, each ..... .90

No. S2204R Lufkin Stainless Steel Rules



Highest grade tempered STAINLESS STEEL. Will not rust or stain. Approximate thickness, $\frac{3}{64}$ inch. No. 4 Graduation, 8ths, 16ths, 32nds, 64ths. Readable Graduations. Packed: Six in a box.

Length, inches	6	12
Approx. width, in.	$\frac{3}{4}$	1
Price, No. **S2204R**, each	**1.35**	**2.65**

No. S2110R Lufkin Flexible Stainless Steel Rules

With Readable Graduations

Graduated one side 16ths upper edge and 32nds lower edge; other side, 64ths lower edge. Regularly furnished with metal bound leather case equipped with a handy pocket clasp. Length, 6 inches.

Price, No **S2110R** ..... Each **1.35**

No. 2103R Lufkin Flexible Steel Rule

Machine Divided

Approximate thickness $\frac{3}{64}$th-in.; width, ½-in.; length, 6 ins. Graduations: 32nds, 64ths, 10ths and 50ths. Facilitates measurement where dimensions are in decimals.

No. **2103R** Flexible Steel Rules ..... Each **.90**

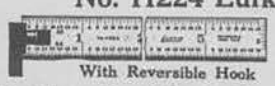
No. 2603R Lufkin Semi-Flexible Steel Rules

Machine Divided

Approximate thickness, 1/50th-in.; width, 1-in.; length, 12 ins. Graduations: 32nds, 64ths, 10ths and 50ths. Eliminates necessity of converting decimals into fractions.

No. **2603R** Semi-Flexible Steel Rules ..... Each **1.65**

No. H224 Lufkin Hook Rules



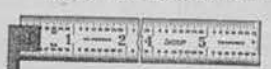
With Reversible Hook

Hook can be changed to any of the four graduations by means of a knurled thumb-screw. Packed: 3 in a box. No. 4 Graduation, 8ths, 16ths, 32nds, 64ths.

Length, inches	6	9	12
Approx. width, inches	$\frac{3}{4}$	$\frac{3}{4}$	1
Price, No. **H224** ..... Each	**1.50**	**2.00**	**2.40**

No. H-2204R Lufkin Hook Rules

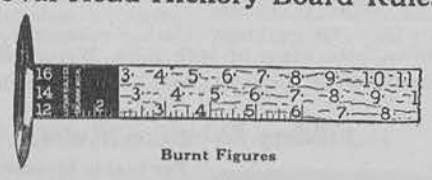
With Removable Hook



Approximate thickness, 3/64ths-in. Graduations: 8ths, 16ths, 32nds and 64ths-in. End graduations on 6 to 24-inch lengths.

Length, Ins.	6	9	12	18	24	36
Width, Ins.	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$
Each	**1.25**	**1.75**	**2.15**	**3.10**	**3.75**	**7.65**

Oval Head Hickory Board Rules



Burnt Figures

Markings:

8-18 rules measure one side 12, 14, 16; other side 8, 10, 18-foot lengths. 12-22 rules measure one side 12, 14, 16; other side 18, 20, 22-foot lengths.

8-18 rules are supplied unless 12-22 is specified.

Have 6-inch wedge handle and are well finished. The markings are burnt, making them prominent and permanent, in 3 tiers.

Standard Width Rules

No.	Width Inches	Full Length Feet	Figured Inches	Weight Lbs. Per Dozen	Per Dozen
1	$1\frac{1}{8}$	$3\frac{1}{2}$	36	$7\frac{1}{2}$	**49.30**
2	$1\frac{1}{8}$	3	30	6	**45.80**
2½	$1\frac{1}{8}$	$2\frac{1}{2}$	24	6	**44.00**
3	$1\frac{1}{8}$	3	30	6	**42.30**

No. 40 Yankee Automatic Drills

Ratchet movement. Made of steel and brass, chrome plated and buffed. Eight drill points, $\frac{1}{16}$ to $\frac{11}{64}$ inch. Length inclusive of drill point, $10\frac{3}{4}$ inches. Packed one in paper box. Weight per doz., $8\frac{5}{16}$ lbs.

Price, No. **40** ....per Dozen **46.80**

No. 41 Yankee Automatic Drills

Drill made of brass and steel, the outside chrome plated and polished. The handle is a magazine for holding the drill points. Eight drill points are included with each drill $\frac{1}{16}$ to $\frac{11}{64}$.

Price No. **41** ....per Dozen **41.80**

No. 42 Yankee Automatic Drills

Drill point revolves in both directions. The backward turn on the upstroke of handle serves to free the chips. Points cannot be turned or pulled out of chuck in use.

Eight sizes of drill points are furnished, $\frac{1}{8}$ to $\frac{11}{64}$ inch. They are packed in a separate wood box.

Tool is made of steel and brass; chrome-plated and polished.

Drill has solid hardwood handle.

Price, No. **42**........................per dozen **$33.00**

Entire length of drill, inclusive of drill point, $11\frac{3}{8}$ inches.

No. 44 Yankee Automatic Drills

Capacity, holds $\frac{1}{16}$ to $\frac{11}{64}$ inches diameter. Tension of spring is adjustable by turning cap on handle, making it light for small drills or soft wood and stiff for large drills or hardwood.

Price, No. **44** ....per Dozen **50.30**

No. 990 Yankee Vises

This vise can be used with bench drills or attached to bench.

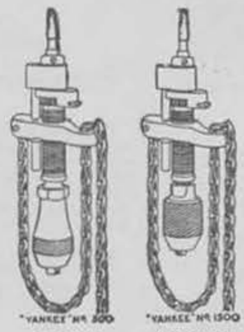
The body and sliding jaw are of cast iron. Will hold work square, when used either flat or on sides.

The sliding jaw has a parallel movement. Has a removable swivel jaw to hold taper work, made of steel, case-hardened. Stem has a friction spring to hold jaw in position.

Steel adjusting screw. The boss on end of body in which screw works, is $\frac{7}{8}$-inch long. The base of the vise is 6 inches long and $2\frac{3}{8}$ inches wide. Extreme height, 2 inches. The opening of jaws, without swivel jaw, is 3 inches; with swivel jaw, $2\frac{5}{8}$ inches. Depth of jaws, $1\frac{3}{8}$ inches. Net wt., 4 lbs.

No. **990**..each **$4.40**

Yankee Chain Drills



No. 500 No. 1500

The automatic feed is positive, fixed and without adjustment for drills up to $\frac{1}{2}$ inch, so that drills cannot be broken in use. There is no hand feed, nor any parts to fuss over, and nothing to catch or pinch the fingers.

No. **500** with 2-Jaw Chuck, length $10\frac{3}{4}$ inches. Weight $3\frac{1}{2}$ pounds.............Each **8.00**

No. **1500**, with 3-Jaw Chuck, length $9\frac{3}{4}$ inches. Weight $3\frac{1}{4}$ pounds.............Each **8.00**

Yankee Spiral Ratchet Screwdrivers

Right and left hand and rigid. No. 30A is the standard size and in general use. Extreme length with bit in chuck 13 inches closed, $18\frac{1}{4}$ inches extended.

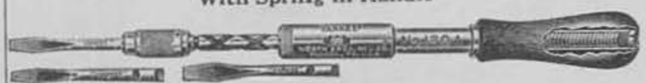
No. 31A, heavy pattern, for use in car shops, etc., where large screws are required to be driven or drawn. Extreme length with bit in chuck $16\frac{3}{4}$ inches closed, 25 inches extended.

No. 35, light pattern. Extreme length extended, $12\frac{3}{8}$ inches, closed $9\frac{1}{8}$ inches.

No. **30A**	with 3 bits of different widths	......per Doz.	**48.20**
" **31A**	" 3 " " " "	"	**64.70**
" **35**	" 3 " " " "	"	**35.80**

Yankee Spiral Ratchet Screwdrivers

With Spring in Handle



Right and left hand and rigid. Spring in handle causes handle to come back for the next push. For driving screws in narrow or deep places. Spring keeps bit in position as it forces the handle back for next stroke.

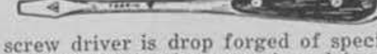
No. 130A, standard size. Extreme length with bit in chuck $14\frac{3}{4}$ inches closed, 20 inches extended.

No. 131A, heavy pattern. Extreme length with bit in chuck $19\frac{1}{4}$ inches closed, $27\frac{1}{2}$ inches extended.

No. 135, light pattern. Extreme length with bit in chuck 10 inches closed, $13\frac{1}{4}$ inches extended.

No. **130A**	with 3 bits of different widths	......per Doz.	**55.00**
" **131A**	" 3 " " " "	"	**74.30**
" **135**	" 3 " " " "	"	**42.60**

No. 30 Tobrin Screw Drivers



This screw driver is drop forged of special analysis steel, hammered and rehammered, and is exceedingly tough and strong. Each screw driver receives a torsion test by special apparatus made for the purpose. The handle is locked under pressure, waterproofed and polished. Will not split or come off.

Length Over All, Inches	Per Doz.	Blade, Diam.	Ins. Length	Length Over All, Inches	Per Doz.	Blade, Diam.	Ins. Length
$5\frac{3}{4}$	**3.50**	$\frac{7}{32}$	2	$12\frac{5}{8}$	**7.00**	$\frac{5}{16}$	7
$6\frac{3}{4}$	**3.80**	$\frac{7}{32}$	3	$14\frac{5}{8}$	**8.00**	$\frac{3}{8}$	8
$8\frac{3}{4}$	**4.25**	$\frac{1}{4}$	4	$16\frac{5}{8}$	**10.00**	$\frac{3}{8}$	10
$9\frac{3}{4}$	**5.00**	$\frac{1}{4}$	5	$18\frac{5}{8}$	**12.00**	$\frac{3}{8}$	12
$11\frac{5}{8}$	**6.00**	$\frac{5}{16}$	6	....	....	..	..

STANLEY TOOLS

SCREW DRIVERS

"Hercules" Composition Handles

Tough and shockproof. Handles are made of a non-metallic substance which is practically breakproof and will not soak up oil or water. Blades are formed from a high quality steel, hardened and tempered and firmly anchored in the handles by heavy wings on the tang of the blade. Tips are machine cross ground to size.

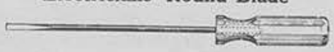
Round Blade

No.	Blade	Diam.	Weight ½ doz.	Doz.
3006	4 in.	¼ in.	1⅛ lbs.	$5.58
	6 in.	5/16 in.	2 lbs.	7.67
	8 in.	⅜ in.	3¼ lbs.	9.75

Square Blade

No.	Blade	Diam.	Weight ½ doz.	Doz.
3007	4 in.	¼ in.	1¼ lbs.	$6.30
	6 in.	5/16 in.	2¼ lbs.	9.75
	8 in.	⅜ in.	3⅝ lbs.	11.85
3017	6 in.	¼ in.	1¾ lbs.	8.35
3027	6 in.	⅜ in.	3 lbs.	10.30

Electricians' Round Blade

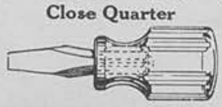


No.	Blade	Diam.	Weight ½ doz.	Doz.
3008	3 in.	3/16 in.	¾ lb.	$4.90
	6 in.	3/16 in.	1¼ lbs.	6.25

Electricians' Square Blade

No.	Blade	Diam.	Weight ½ doz.	Doz.
3018	3 in.	3/16 in.	¾ lb.	$5.60

Close Quarter



No.	Blade	Diam.	Weight ½ doz.	Doz.
3012	1¼ in.	¼ in.	9/16 lb.	$5.60

Pocket Size with Clip
Round Blade

No.	Blade	Diam.	Weight ½ doz.	Doz.
3010	1½ in.	⅛ in.	¾ lb.	$1.90
	2 in.	⅛ in.	¾ lb.	2.10
	3 in.	⅛ in.	1 lb.	2.30

Square Blade

No.	Blade	Diam.	Weight ½ doz.	Doz.
3011	2 in.	⅛ in.	¾ lb.	$2.95

"Hercules" Assortment

Displays a fine choice of fast selling sizes in a small space. Card-display package is attractive and attention-getting. Contains one dozen drivers—2 No. 3006—4 in., No. 3006—6 in., 3 No. 3018—3 in., No. 3017—6 in., 1 each No. 3010 pocket and No. 3012 close quarter—Weight 5 lbs. $6.35 Set

SCREW DRIVERS

"DEFIANCE"
Standard Blade and Tip

Polished steel blades tempered overall. Tips are machine cross ground. Hardwood handles with cut flutes finished a glossy red. Nickel plated ferrules. Average weight per dozen, 8½ lbs.

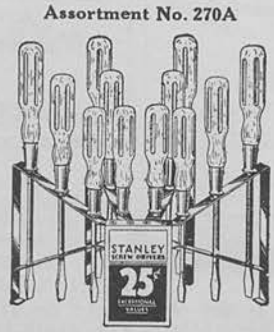
No.	Blade	Diameter	Doz.
1270	3 in.	7/32 in.	$1.50
	4 in.	¼ in.	1.55
	5 in.	¼ in.	1.65
	6 in.	¼ in.	1.85
	8 in.	5/16 in.	2.50
	10 in.	5/16 in.	3.20

STANLEY
Standard Blade and Tip

Tempered steel blades, polished and lacquered, held in handles by two ears swedged on the shank and by a rivet that goes through ferrule handle and shank. Tips are machine cross ground. Large, natural color, deeply fluted handles. Average weight, ½ dozen, 2½ lbs.

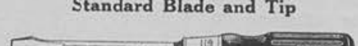
No.	Blade	Diameter	Doz.
270	2½ in.	7/32 in.	$2.75
	3 in.	7/32 in.	2.85
	4 in.	¼ in.	3.20
	5 in.	5/16 in.	3.35
	6 in.	5/16 in.	3.70
	8 in.	⅜ in.	4.60
	10 in.	⅜ in.	5.45
	12 in.	⅜ in.	7.45

SCREW DRIVERS
Assortment No. 270A



No. 270A Display stand assortment of No. 270 Screw Drivers. Contains 4 each of 4, 5 and 6 in. sizes. The stand is lacquered brilliant red. The legs can be spread to make a small or large display stand. Free with every initial order for 12 No. 270 Screw Drivers. Weight 2½ lbs. $3.45 Set

"HURWOOD"
Standard Blade and Tip



New patented bolster construction assures better insulated tool with entire length of blade tempered to provide greater strength. Tips are machine cross ground. Black satin finished handles, with deep narrow flutes for secure gripping.

No.	Blade	Diameter	Doz.
25	2½	7/32	$4.95
	3	7/32	5.25
	4	1/4	5.60
	5	5/16	5.95
	6	5/16	6.30
	8	3/8	7.95
	10	3/8	9.65
	12	3/8	11.30

"HURWOOD"
Small Blade

Designed for light work. Handy for electrical work as tip fits the countersink in porcelain fixtures. Made with new bolster type construction for long service. Black satin finished handles are short and narrow in diameter. Tips machine cross ground.

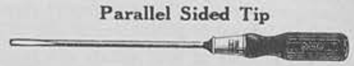
No.	Blade	Diameter	Doz.
55	1½	3/16	$4.35
	2½	3/16	4.95
	3	3/16	5.25
	4	3/16	5.60
	5	3/16	5.95
	6	3/16	6.25
	8	3/16	7.95
	10	3/16	9.30
	12	3/16	10.45

"HURWOOD"

Blade shank and head are hot forged from one piece of tool steel. Two projecting wings on the blade and a rivet that goes through the ferrule handle and shank lock the blade in the handle. Machine cross ground tips. Black satin finished, deeply fluted handles. Blades are polished and dipped in clear lacquer. Average weight, ½ dozen, 2½ lbs.

No.	Blade	Diameter	Doz.
20	2½ in.	7/32 in.	$4.95
	3 in.	7/32 in.	5.25
	4 in.	¼ in.	5.60
	5 in.	5/16 in.	5.95
	6 in.	5/16 in.	6.30
	8 in.	⅜ in.	7.95
	10 in.	⅜ in.	9.65
	12 in.	⅜ in.	11.30

"HURWOOD"
Parallel Sided Tip



Sides of tips are parallel and only as wide as diameter of blade so that countersunk screws can be followed up without marring the work. Has the new bolster type construction for additional strength. Hardwood handles are shaped and fluted for easy handling. Tips accurately machine cross ground to size.

No.	Blade	Diameter	Doz.
45	2½ in.	3/16 in.	$4.95
	3 in.	3/16 in.	5.25
	4 in.	3/16 in.	5.60
	5 in.	3/16 in.	5.95
	6 in.	3/16 in.	6.30
	8 in.	7/32 in.	7.95

"HURWOOD" MACHINISTS'
Extra Heavy Square Blade

Used for heavy work where a long driver cannot be used conveniently. Blade, shank and head hot forged from one piece of tool steel. Machine cross ground tips. Black satin finished hardwood handles with deep cut flutes. Average weight, 1 dozen, 3½ lbs.

No.	Blade	Diam.	Doz.
52	3½ in.	⅜ in.	$10.45
53	4½ in.	⅜ in.	12.55

"HURWOOD" BABY

Blade shank and head hot forged from one piece of steel. Black handles fluted. Only 4⅛ in. overall. Weight, ½ dozen, ½ lb.

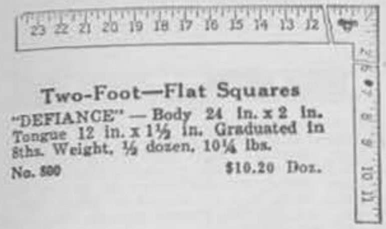
No.		Blade	Diameter	Doz.
21	Standard Head	1½ in.	7/32 in.	$4.90

OFFSET SCREW DRIVERS

Drop forged from specially selected tool steel, correctly hardened and tempered. Tips are machined accurately. Nickel plated.

No.	Overall	Weight		Doz.
670	5 in.	1 lb.	½ Dz.	$3.50
671	6 in.	1⅝ lbs.	½ Dz.	4.20

CARPENTERS' SQUARES

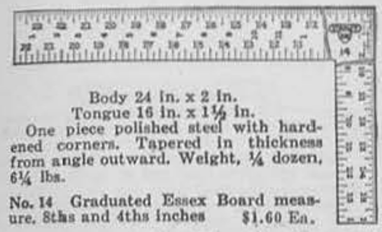


Two-Foot—Flat Squares

"DEFIANCE" — Body 24 in. x 2 in. Tongue 12 in. x 1½ in. Graduated in 8ths. Weight, ½ dozen, 10¼ lbs.

No. 500 $10.20 Doz.

Stanley Two-Foot



Body 24 in. x 2 in.
Tongue 16 in. x 1½ in.

One piece polished steel with hardened corners. Tapered in thickness from angle outward. Weight, ¼ dozen, 6¼ lbs.

No. 14 Graduated Essex Board measure, 8ths and 4ths inches $1.60 Ea.

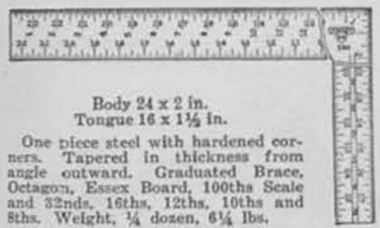
Graduated in 16ths, 12ths, 4ths, Brace and Essex Board measure.

No. 3 Polished Finish $1.80 Ea.
No. 3B Blued Finish 2.40 Ea.

One piece flat steel. Graduated 12ths, 8ths and 4ths. Weight, ¼ dozen, 2¾ lbs.

No. 10 Polished $1.35 Ea.

Stanley Two-Foot

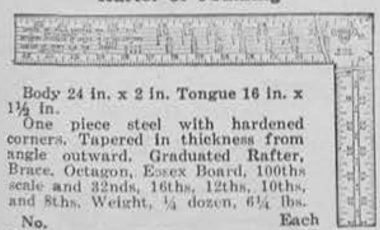


Body 24 x 2 in.
Tongue 16 x 1½ in.

One piece steel with hardened corners. Tapered in thickness from angle outward. Graduated Brace, Octagon, Essex Board, 100ths Scale and 32nds, 16ths, 12ths, 10ths and 8ths. Weight, ¼ dozen, 6¼ lbs.

No. 100 Polished Finish $2.00 Ea.

Rafter or Framing



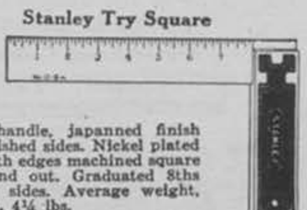
Body 24 in. x 2 in. Tongue 16 in. x 1½ in.

One piece steel with hardened corners. Tapered in thickness from angle outward. Graduated Rafter, Brace, Octagon, Essex Board, 100ths scale and 32nds, 16ths, 12ths, 10ths, and 8ths. Weight, ¼ dozen, 6¼ lbs.

No.		Each
R100	Polished Finish	$2.55
R100B	Blued Finish	3.15
R100C	Royal Copper Finish	3.55

TRY AND MITRE SQUARES

Stanley Try Square

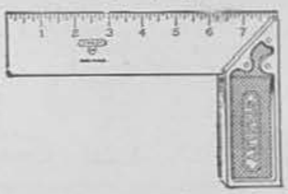


Iron handle, japanned finish with polished sides. Nickel plated blade with edges machined square inside and out. Graduated 8ths on both sides. Average weight, ½ dozen, 4¼ lbs.

No.	Blade	Handle	Doz.
12	4 in.	3⅛ in.	$9.30
	6 in.	4⅝ in.	9.90
	8 in.	5½ in.	11.05
	10 in.	6⅝ in.	14.40
	12 in.	8 in.	16.65

STANLEY TOOLS

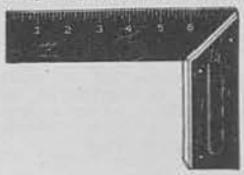
Stanley Try Square



Iron handle, japanned finish with polished sides. Nickel plated blade with edges machined square inside and out. Graduated 8ths on both sides. Average weight ½ dozen, 4⅞ lbs.

No.	Blade	Handle	Doz.
1	6 in.	4 in.	$12.20
	8 in.	5⅛ in.	14.90
	10 in.	6 in.	17.60
	12 in.	6 in.	21.30

Stanley Try and Mitre Square



Can be used either as a Try or Mitre Square. Rosewood handle with brass face plate. Blued steel blade with edges machined square inside and out. Graduated 8ths both sides. Average weight, ½ dozen, 3 lbs.

No.	Blade	Handle	Doz.
2	4½	3	$11.40
	6	3½	12.55
	7½	4¾	14.30
	9	5⅝	17.40

TRY AND MITRE SQUARES

"Defiance" Adjustable

Try and Mitre Square

12-inch steel blade, graduated 8ths on one side and 16ths on the other. Blade can be removed and used as a straight edge. Iron head Japanned. Weight each, 1 lb.

No. 1221 12 in. $ .60 Ea.

Stanley Adjustable

Try and Mitre with Level and Scriber

Heavy, narrow steel blade, highly polished with edges ground square and parallel. Blade can be reversed to permit right to left and left to right readings in 8ths, 16ths and 32nds on inside edge of square. Blade can be removed and used as a straight edge. Iron head. Japanned finish, fitted with a level and hardened scratch awl. Weight each, 1 lb.

No.	Blade	Handle	Each
21	9 in.	3¾ in.	$1.15
	12 in.	3¾ in.	1.15

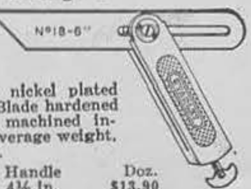
BEVELS

Sliding "T"

Rosewood handle with brass tips and "Handy Grip." Blued blade machined inside and out. Average weight, ½ dozen, 2 lbs.

No.	Blade	Handle	Doz
25	6 in.	4½ in.	$8.10
	8 in.	5½ in.	8.30
	10 in.	6½ in.	8.70
	12 in.	7⅝ in.	11.20

Sliding "T"



Iron handle, nickel plated mirror finish. Blade hardened and tempered, machined inside and out. Average weight, ½ dozen, 3 lbs.

No.	Blade	Handle	Doz.
18	6 in.	4⅛ in.	$13.90
	8 in.	5⅛ in.	15.55
	10 in.	6⅛ in.	16.75
	12 in.	6⅛ in.	20.10

WOOD GAUGES

Marking

Beech head. Boxwood screw. Fixed point. Graduated in 16ths for 6 inches. Weight, 1 dozen, 3 lbs.

No. 61 $4.35 Doz.

Mortise and Marking

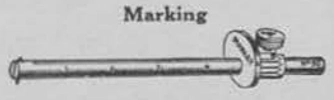
Marks both sides of mortise at one time. Polished rosewood. Adjustable brass slide. Brass thumb screw and face plate. Graduated in 16ths for 3 inches. Weight, ½ dozen, 2½ lbs.

No. 77 $22.75 Doz.

METAL GAUGES

Nickel plated. Heads carefully machined. Bars 6½ in. long and graduated in 16ths of inches for five inches. Furnished with metric graduations at no extra cost on special order.

Marking



Single face head. Single bar. Adjustable, tempered points.

No. 90 Wgt. Ea., ¼ lb. $1.00 Ea.

Marking and Mortise

No. 91 Wgt. Ea., ½ lb. $1.65 Ea.

ALUMINUM LEVELS

Two plumbs and one level protected by metal "eclipse" covers. Adjustable proved glasses. Nickel plated trim.

No.	Length	Weight Each	Each
237	12 in.	1 lbs.	$5.25
	18 in.	1½ lbs.	6.30
	24 in.	2 lbs.	7.40

Stanley Aluminum
Non-Adjustable—Size 2$\frac{3}{16}$" x 1$\frac{1}{16}$"

Patented construction imparts maximum strength and rigidity. Solid set proved glasses protected by glass covers. 12 in. and 18 in. have 4 glasses, 24 in. and 28 in. have 6 glasses. 12 in. has grooved bottom.

No.	Length	Weight Each	Each
313	18 in.	1½ lbs.	$2.95
	24 in.	2 lbs.	3.35
	28 in.	2⅝ lbs.	4.00

Stanley Aluminum
Adjustable—Size 2½"x1⅛"

Light in weight and easy to handle. Will not rust or warp. The patented "Truss" construction gives them additional strength. Glasses are marked by two burned-on heavy black lines. Glass covers protect the glasses and keep out dirt. Top, bottom, and ends finished in Stanley orange.

No.	Length	Weight Each	Each
232	24 in.	2 lbs.	$5.45
	28 in.	2⅝ lbs.	6.30

Stanley Masons'
Aluminum—Adjustable

Cross sections 2 13/16 in. x 1 3/16 in. De luxe quality. Finest aluminum alloy castings and the Stanley truss construction make it strong, warp-proof and rust-proof. 6 matched proved glasses — 2 double plumbs and 1 double level — set solid in adjustable aluminum cases. Top, bottom and ends finished in Stanley orange.

No.	Length	Weight Each	Each
235	42 in.	4¼ lbs.	$10.55

Stanley Hardwood
Non-Adjustable—Proved Glasses

One plumb and one level. Stock 2¾" by 1 3/16". Made from seasoned wood, kiln dried and sealed against moisture. Level glasses protected by heavy brass plates.

	Length	Weight Ea.	Each
No. 0	24 in.	1⅝ lbs.	$1.84
	28 in.	2⅛ lbs.	2.00

Stanley Hardwood
Adjustable—Brass Tips

One plumb and one level. Stock 2¾ in. by 1 3/16 in. Proved glasses.

	Length	Weight Ea.	Each
No. 3	24 in.	3 lbs.	$2.75
	28 in.	3⅜ lbs.	2.95

STANLEY TOOLS

Stanley Hardwood
Non-Adjustable—Brass Tips

One plumb and one level. Stock 2¾ x 1 3/16 in. Proved glasses.

No.	Length	Weight Each	Each
03	24 in.	3 lbs.	$2.85
	26 in.	3¼ lbs.	2.95
	28 in.	3⅝ lbs.	3.05
	30 in.	3¾ lbs.	3.15

Stanley Protected Glass Levels

Made of seasoned pine, and sealed against moisture. Matched, highly accurate glasses set solidly in plaster. Heavy protecting glass windows. "Hand-y" grips. Hang hole in one end.

Sugar Pine—Lacquered Orange

No.	Length	Weight	Each
347	18 in.	1 lb.	$1.00
	24 in.	1⅜ lbs.	1.10

Sugar Pine—Lacquered Orange

Two single plumbs and one double level. Sugar pine, 2¼ in. x 1-5/32 in., lacquered orange. 4 proved glasses set solid and protected by heavy glass covers. "Handy Grip."

No.	Length	Weight Each	Each
257	24 in.	1⅜ lbs.	$1.75
	28 in.	1⅝ lbs.	1.85

STANLEY CARPENTERS' LEVELS

Protected Glass Levels
Sugar Pine—Lacquered Orange

Two single plumbs and one double level. Sugar pine, 2 7/16 in. x 1 5/32 in., lacquered orange. 4 proved glasses set solid and protected by heavy glass covers. "Hand-y Grips" for convenience in handling.

No.	Length	Weight Each	Each
258	24 in.	1½ lbs.	$3.25
	26 in.	1⅝ lbs.	3.35
	28 in.	1¾ lbs.	3.45
	30 in.	1⅞ lbs.	3.50

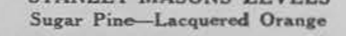
STANLEY TORPEDO LEVELS

Accurate, convenient levels for mechanics, inspectors, householders, etc. Rounded ends and small size make them handy pocket levels. Selected stock, size 9 in. x 1¼ in. x ¾ in. Packed 6 in a box.

Made of mahogany. Two glasses—plumb and level. Nickeloid face plate.

No.	Length	Wgt. ½ Doz.	Each
259	9 in.	1¾ lbs.	$ .63

STANLEY MASONS' LEVELS
Sugar Pine—Lacquered Orange



Seasoned sugar pine, 2 7/16 in. x 1 3/16 in., lacquered orange. 6 matched proved glasses set solid—4 single plumbs, 1 double level. Glasses protected by heavy glass covers.

No.	Length	Wgt. 1/6 Dz. Not Bound	Each
252	48 in.	5½ lbs.	$3.35

IRON PLUMBS AND LEVELS
Adjustable—Proved Glasses
Flat Bottom

Made of special iron castings to insure lightness, strength and rigidity. Fitted with "Eclipse" covers, outer tubes fitting over level cases, which can be turned to expose level glass or protect it completely when not in use. Adjustable. Proved glasses. Japanned with nickel trim.

	Length	Weight Ea.	Each
No. 36	12 in.	1¼ lbs.	$3.50
	18 in.	2 lbs.	3.85
	24 in.	3 lbs.	4.00

MACHINISTS' IRON LEVELS

Bottoms are accurately milled. Ground glasses are extra long and of large diameter, making a practical level for the machinist. Glasses are set in metal cases, and attached with a positive screw adjustment. Furnished with "Eclipse" covers. Grooved bottom.

	Length	Weight Ea.	Each
No. 34V	6 in.	⅝ lbs.	$3.35
	8 in.	15/16 lbs.	4.20

MACHINISTS' LEVELS

Square iron, nickel plated. Proved glass. Weight, ½ dozen, 3½ lbs.

No.	Length	Each
38½	4 in.	$1.15
39½	6 in.	1.35

SPECIAL LEVELS
Stanley Straight Edge Pocket

Can be attached to a straight edge or square. Proved glass. Iron with brass top plate. Japanned. Weight, 1 dozen, 1¾ lbs.

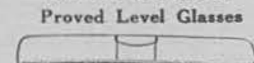
No.	Length	Doz.
41	3 3/16 in.	$4.00

POCKET LEVELS

Hexagon shape. Nickel plated. Proved glass set solid in plaster. Weight, ½ dozen, ½ lb.

No.	Length	Each
31	2 in.	$ .65
	2½ in.	.75
	3 in.	.85
	3½ in.	.95

LEVEL GLASSES
Proved Level Glasses



No. 208 Assortment—12 glasses: 1 each—1 in., 1¾ in., 3 in.; 2 each—1¼ in., 2 in., 2½ in.; 3 only 1½ in. $1.35 Doz.

	Length	Doz.
No. 208	1 in.	$1.25
	1¼ in.	1.25
	1½ in.	1.25
	1¾ in.	1.25
	2 in.	1.25
	2¼ in.	1.30
	2½ in.	1.35
	3 in.	1.50

"DEFIANCE" BENCH PLANES

Practical for the occasional user. Tempered tool steel cutters. Sides and bottoms ground true. Japanned finish with polished lever cap and red hardwood handle and knob. Smooth bottoms.

Adjustable

Double plane irons, adjustable endwise and sidewise. Snap down lever cap. Average weight, 3½ lbs.

Smooth

No.	Length	Cutter	Each
1203	8 in.	1¾ in.	$1.65
1204	9 in.	2 in.	2.00

Jack

No.	Length	Cutter	Each
1205	14 in.	2 in.	$2.40

STANLEY "BAILEY" PLANES

Used by 9 out of 10 woodworkers. All parts are carefully machined and fitted. Finest tool steel cutters—adjustable endwise and sidewise. Rosewood handles and knobs. Japanned with nickel plated trim.

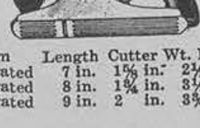
Smooth Bottom

No.		Length	Cutter	Wt. Lbs.	Each
3	Smooth	8 in.	1¾ in.	3½	$4.00
4	Smooth	9 in.	2 in.	3¾	4.10
4½	Smooth	10 in.	2⅜ in.	5	4.70

Jack, Fore, Jointer Planes
Smooth Bottom

No.		Bottom	Length	Cutter	Each
5	Jack	Smooth	14 in.	2 in.	$4.70
5¼	Jack	Smooth	11½ in.	1¾ in.	5.25
6	Fore	Smooth	18 in.	2⅜ in.	6.45
7	Jointer	Smooth	22 in.	2⅜ in.	7.70
8	Jointer	Smooth	24 in.	2⅝ in.	9.20

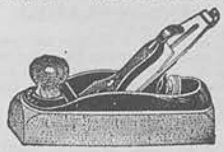
STANLEY "BAILEY" PLANES
Corrugated Bottom



No.	Bottom	Length	Cutter	Wt. Lbs.	Each
2C	Corrugated	7 in.	1⅝ in.	2½	$5.10
3C	Corrugated	8 in.	1¾ in.	3½	4.25
4C	Corrugated	9 in.	2 in.	3¾	4.35

STANLEY TOOLS

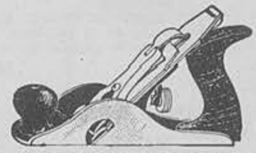
"BAILEY" WOOD PLANES



Bottoms, knobs and handles are made from seasoned beech. Cutters are adjustable endwise and sidewise. Frog is held in place by two screws which pass through the top iron and screw into brass lugs. Lugs are securely pinned into wood bottom of plane.

No.		Bottom	Lgth. In.	Cutter In.	Wt. Lbs.	Each
26	Jack	Smooth	15	2	3¾	$3.95
28	Fore	Smooth	18	2⅜	5½	6.05
31	Jointer	Smooth	24	2⅜	6¼	6.40

BENCH RABBET PLANES



Adapted for any kind of work where rabbets are to be cut. They have the double iron and well-known "Bailey" adjustments for depth of cut and evenness of shaving. Malleable iron bottoms. Rosewood handles and knobs.

Stationary Handle and Knob

No.		Length	Cutter	Each
10½	Smooth	9 in.	2⅛ in.	$6.95

BLOCK PLANES
"Defiance" Non-Adjustable

Black hardwood knobs. Japanned lever caps. Sides polished. Weight each, 1⅜ lbs.

No.		Length	Cutter	Each
1247	Japanned	7 in.	1¾ in.	$ .65

STANLEY BLOCK PLANES
Stanley Non-Adjustable

Carefully finished. Bottom milled and ground. Japanned. Weight each, ⅞ lb.

No.	Length	Cutter	Each
102	5½ in.	1⅜ in.	$ .90

Stanley Adjustable

Tempered tool steel cutter adjustable endwise by a lever. Bottom and sides milled and ground. No. 103 has a boss cast in the front for finger rest, and sides are japanned. No. 120 has a rosewood knob in place of the boss, and the sides are milled and ground.

No.	Length	Cutter	Each
103	5½ in.	1⅜ in.	$1.15
120	7 in.	1⅝ in.	1.65

STANLEY BLOCK PLANES
Stanley Non-Adjustable

Bottom and sides are milled and ground. Lever cap is nickel plated. Rosewood knob. Weight each, 1⅜ lbs.

No.	Length	Cutter	Each
110	7 in.	1⅝ in.	$1.10

Stanley Adjustable

Cutter is adjustable endwise. Bottom and sides are milled and ground. Japanned trim. Rosewood knob. Weight each, 1⅝ lbs.

No.	Length	Cutter	Each
220	7 in.	1⅝ in.	$1.65

Stanley "Bailey" Adjustable

Cutter is adjustable endwise and sidewise. Adjustable throat. "Handy Grip." Sides and bottoms ground. Japanned trim. Weight each, 1½ lbs.

No.	Length	Cutter	Each
9½	6 in.	1⅝ in.	$2.30
15	7 in.	1⅝ in.	2.50

Nickel Plated Trimmings

No.	Length	Cutter	Each
16	6 in.	1⅝ in.	$3.35
17	7 in.	1⅝ in.	3.70

Stanley Low Angle Adjustable

Cutter rests on its seat at 12° angle. "Knuckle Joint" lever. "Hand-y" grip. Nickel plated trimmings.

No.	Length	Cutter	Each
65	7 in.	1⅝ in.	$3.45

Double End—Adjustable

Two mouths and reversible cutter seat. Can be converted to Bull Nose Plane. Cutter is adjustable endwise. Bottom and sides ground and milled. Rosewood knob. Japanned trimmings. "Hand-y Grip."

No.	Length	Cutter	Each
131	8 in.	1⅝ in.	$3.70

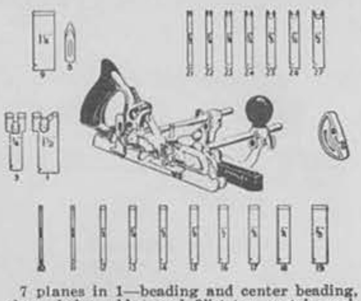
STANLEY CIRCULAR PLANES

Flexible steel bottoms adjustable for planing convex and concave surfaces. Stanley "Bailey" Cutter and Lever Cap construction. Cutters adjustable endwise and sidewise. Japanned frames.

No. 113—Face fastened at its center to plane body, and adjusted at end by means of screw and lever. Graduated scale for setting the face. Weight, 3¾ lbs.

No.	Length	Cutter	Each
113	10¼ in.	1¾ in.	$9.05

STANLEY PLANES
"FORTY-FIVE" COMBINATION



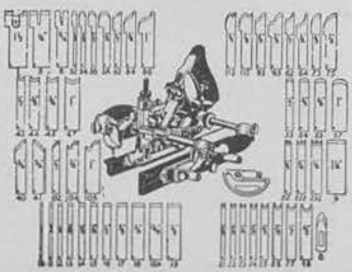
7 planes in 1—beading and center beading, plow, dado, rabbet and filletster, match, sash and slitting planes. It is fitted with spurs for use across the grain and can be used either right or left hand. Metal parts are nickel plated; handle, knob and fence are rosewood. Packed complete in a sturdy box. Weight, 9½ lbs.

No. 45 with 23 cutters — $19.00 Each

Special Cutters

23 additional cutters, special shapes, and 5 special bottoms for making hollows and rounds, can be procured on short notice.

"FIFTY-FIVE" COMBINATION



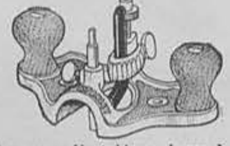
A planing mill within itself. In addition to being a beading and center beading plane, a plow, dado, rabbet, filletster, match, sash and slitting plane, it is also a superior moulding plane and will accommodate cutters of almost any shape and size. Fitted with adjustable spurs for working across the grain. Metal parts are nickel plated; wood parts are rosewood. Packed complete with cutters in a sturdy box. Weight, 15 lbs.

No. 55 with 55 cutters — $36.00 Each

Special Cutters

41 additional cutters, special shapes, can be procured on short notice.

OPEN THROAT ROUTER



Cutters are adjustable and can be held on front of cutter post for regular work or on back for bull-nose work. An attachment for closing the throat, for use on narrow surfaces and regulating depth of cut is furnished. Nickel plated. 7½ in. long. 3 cutters—¼ in., ½ in. and smoothing cutter. Weight each, 2⅝ lbs.

No. 71 — $4.70 Each

BULL-NOSE RABBET

For working in corners and other hard to get at places. Adjustable mouth. Japanned. Weight each, ⅝ lbs.

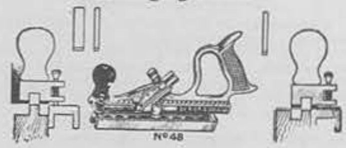
No. 75 4 in. long — $ .90 Ea.

STANLEY TOOLS

STANLEY PLANES
TONGUE AND GROOVE MATCH PLANES

These planes cut a tongue on one edge of one board and a groove in the edge of another for a true fit. Straightness of both tongue and groove, and their distance from the surface is governed by a fence.

Swinging Fence



Furnished with 2 plow cutters of the same width and 1 extra wide cutter. Cuts 5/16 in. groove on boards ¾ in. to 1¼ in. Centers on ⅞ in. 8¾ in. long. Nickel plated. Rosewood knob. Weight, 2½ lbs.

No. 48 — $6.75 Ea.

Cuts 3/16 in. groove on boards ½ in. to ¾ in. Centers on ½ in. 9 in. long. Weight each, 2⅛ lbs. Otherwise similar to No. 48.

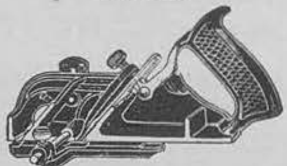
No. 49 — $6.75 Ea.

STANLEY PLANES
RABBET

Will lie flat on either side and can be used right or left hand while planing into corners or against perpendicular surfaces. Fitted with spur and detachable depth gauge. Japanned with nickel plated trim. Weight each, 2½ lbs. Length 8 in.

No.	Cutter	Each
190	1½ in. cutter	$2.45
191	1¼ in. cutter	2.45
192	1 in. cutter	2.45

DUPLEX FILLETSTER AND RABBET



Two seats for the cutter, one for regular and the other for bull-nose work. Has a spur and a removable depth gauge. Adjustable fence can be used on either side and slides under the bottom. To work as a rabbet plane, remove fence and arms. Japanned. 8½ in. long. Weight each, 3 lbs.

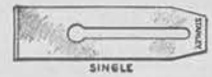
No. 78 1½ in. cutter — $3.35 Ea.

SIDE RABBET PLANE

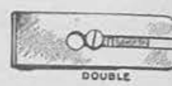
For side rabbeting in trimming dados, mouldings and grooves of all kinds. Reversible nose piece for working in corners. Fitted with depth gauge. Sides and bottoms ground to insure absolute accuracy. Nickel plated. Rosewood knob. Weight each, ½ lb.

No.		Length	Cutter	Each
98	Right Hand	4 in.	½ in.	$3.00
99	Left Hand	4 in.	½ in.	3.00

BENCH PLANE IRONS



SINGLE

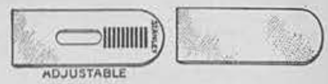


DOUBLE

Irons packed ½ dozen in a box.

Size	For Planes	Single Each	Double Each
1¼ in.	1	$ .55	$1.00
1⅝ in.	2, 2C, 602	.75	1.15
1¾ in.	3, 3C, 20, 22, 5¼, 5¼C, 113, 603, 603C, 605¼	.75	1.15
2 in.	4, 4C, 5, 5C, 9, 24, 26, 35, 604, 604C, 605, 605C, S4, A4, A5, S5	.80	1.35
2⅛ in.	10, 10¼, 10½	.90	1.50
2⅜ in.	4½, 4½C, 5½, 5½C, 6, 6C, 7, 7C, 11, 604½, 604½C, 605½, 605½C, 606, 606C 607, 607C, 51, 28, 31, 36	.95	1.60
2⅝ in.	8, 8C, 608, 608C, 32	1.00	1.65

BLOCK PLANE IRONS



ADJUSTABLE

ADJUSTABLE NON-ADJUSTABLE

Specify whether adjustable or non-adjustable cutters are desired.

Size	For Planes	Doz.
1 in.	100, 101	$1.95
1⅝ in.	60, 60½, 61, 203	5.70
1⅜ in.	102	3.20
1⅝ in.	103	4.25
1⅝ in.	9½, 15, 16, 17, 18, S18, A18, 118, 19, 63, 65, 65½, 120, 131, 220	5.70
1⅝ in.	110, 130, 1120	4.25

ROSEWOOD KNOBS AND HANDLES

Knobs for Planes

No.		Each
4	3, 3C, 4, 4C, S4, 5¼, 5¼C and corresponding sizes of Gage and Bed Rock Planes.........	$ .60
5	4½, 4½C, 5, 5C, 193 and corresponding sizes of Gage and Bed Rock Planes.............	.60
6	5½, 5½C, 6, 6C, 7, 7C, 8, 8C and corresponding sizes of Gage and Bed Rock Planes....	.60

STANLEY SCRAPER PLANES

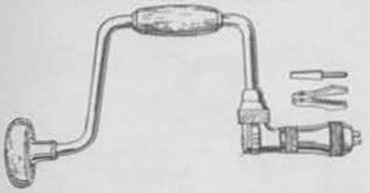
Blades adjustable for angles and for thickness of shavings. Sides and bottoms machined smooth and true. Double grip rosewood handles for ease in handling and balance in operation. Weight, 4 lbs.

No.	Bottom	Length	Cutter	Each
12	Iron	6¼ in.	2⅞ in.	$4.85

STANLEY TOOLS

BIT BRACES

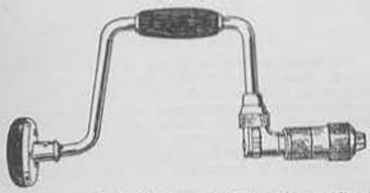
"Defiance"



Open ratchet. Pin alligator jaws. Steel ratchet and chuck. Hardwood head and handle lacquered glossy red. Polished finish. Weight, ½ dozen, 14 lbs.

No. 1253 10 in. sweep $14.35 Doz.

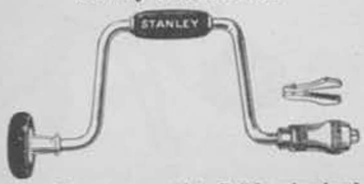
"Defiance"



Open ratchet. Spring alligator jaws. Steel ratchet and large round nose chuck. Steel clad ball bearing head. Hardwood head and handle. Nickel plated. Weight, ½ Dozen, 16½ lbs.

No. 1250 10 in. sweep $33.15 Doz.

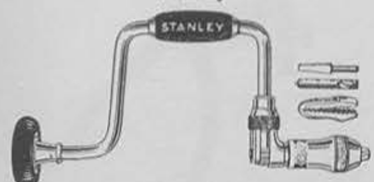
Stanley Sleeve Brace



Sleeve brace, non-ratchet. Ball bearing head. Native hardwood head and handle. Cast, pin type, alligator jaws. Weight, ½ dozen, 10¾ lbs.

No.	Sweep	Doz.
No. 966	8 in. sweep	$12.00
	10 in. sweep	12.00

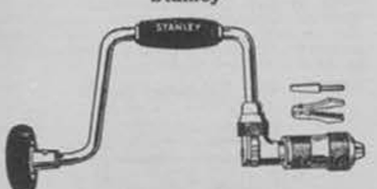
Stanley



Most popular medium priced Bit Brace. Open ratchet. Cast steel, pin alligator jaws. Steel chuck and ratchet. Ball bearing head. Heavy steel bow. Glossy black hardwood head and handle. Mirror nickel plated. Weight, ½ dozen, 16½ lbs.

No.	Sweep	Each
No. 945	6 in. sweep	$4.05
	8 in. sweep	3.60
	10 in. sweep	3.60
	12 in. sweep	3.85

Stanley

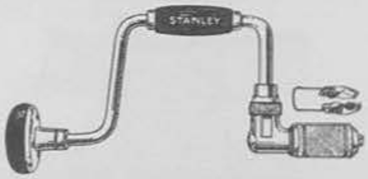


Open ratchet. Pin alligator jaws. Steel ratchet and large round nose chuck. Ball bearing head. Glossy black hardwood head and handle. Nickel plated. Weight, ½ dozen, 14 lbs.

No.	Sweep	Price
No. 965N	8 in. sweep	$2.60 Ea.
	10 in. sweep	2.60 Ea.
	12 in. sweep	2.85 Ea.

BIT BRACES

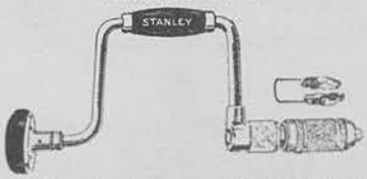
Stanley DeLuxe



Box ratchet. Forged universal jaws. New nut and cotter pin chuck fastening. Bronze bushed, ball bearing head full steel clad. Cocobolo head and handle. Heavy steel bow. Mirror nickel plated. Weight, 1/6 dozen, 7 lbs.

No.	Sweep	Price
No. 923	6 in. sweep	$6.40 Ea.
	8 in. sweep	5.70 Ea.
	10 in. sweep	5.70 Ea.
	12 in. sweep	5.95 Ea.

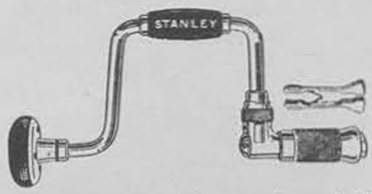
Stanley DeLuxe



High quality tool for particular tool user. Concealed ratchet brace protects user's hands, keeps out dirt, and retains the lubricant. Nickel plated mirror finish. Metal-clad, bronze bushed ball bearing head. Cocobolo head and handle. Forged Universal jaws. Average weight, 1/6 dozen, 7 lbs.

No.	Sweep	Each
No. 921	8 in. sweep	$6.20
	10 in. sweep	6.20
	12 in. sweep	6.35
	14 in. sweep	6.60

Stanley DeLuxe

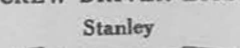


Box ratchet. Holds only square taper shank bits. Interlocking jaws cannot jam, slip, or come out even under the heaviest loads. Nickel plated, mirror finish. Bronzed bushed, ball bearing head, steel-clad. Cocobolo head and handle. Weight, 1/6 dozen, 7 lbs.

No.	Sweep	Each
No. 919	6 in. sweep	$7.30
	8 in. sweep	7.30
	10 in. sweep	6.70
	12 in. sweep	6.95
	14 in. sweep	7.20

SCREW DRIVER BITS

Stanley



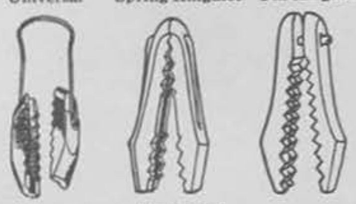
Forged from crucible steel, oil tempered and polished. Tips machine cross ground. Weight. 1 dozen, 1½ lbs.

No.	Tip	Length	Doz.
26	3/16 in.	5 in.	$2.90
	¼ in.	5 in.	2.70
	5/16 in.	5 in.	2.70
	⅜ in.	5 in.	2.70
	½ in.	5 in.	2.70
	⅝ in.	5 in.	3.85
	¾ in.	5 in.	4.50
Asst. 3 ea. ¼ in., ⅜ in. 5 ea. 5/16 in. 1 ea. ½ in.			$2.70

BIT BRACE JAWS

For Stanley Braces

Universal Spring Alligator Pin Alligator



Universal

For Braces Nos. 923, 923A, 921, 810, 811, 813 and 993. Forged and hardened. Hold round shanks up to ½ in. and taper shanks as large as Clark's No. 2. $ .70 Pr.

Spring Alligator

For Braces Nos. 915, 945, 916, 984 and 1250. Cast steel hardened and machined. Hold ordinary size taper shanks and small and medium size drills. $ .70 Pr.

Pin Alligator

For Braces Nos. 965N, 965, 1151, 1251, 1253, 975 and 966. Cast steel. Hold all ordinary size taper shanks. $ .70 Pr.

BIT EXTENSIONS

Will follow an 11/16 inch bit. Bit capacity ⅞ in. Jaws are of two piece construction, drop forged and tempered, and held in position by two springs. Sleeve and nut are seamless steel tubing. Weight, ½ dozen, 5½ lbs.

No.	Length	Price
No. 3	15 in. long	$2.80 Ea.
	18 in. long	2.35 Ea.
	24 in. long	2.50 Ea.
	30 in. long	3.15 Ea.

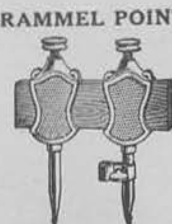
COUNTERSINK

Rose Type for wood or metal. Tool steel hardened and tempered. Clean sharp cutting edges. Blued finish. 4¼ in. long. Weight, ½ dozen, 1¼ lbs. No. 139G has a depth gauge.

No. 139 ⅝ in. No. 139G ⅝ in.

$5.45 Doz.

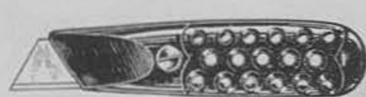
TRAMMEL POINTS



Used to lay out the distance between two points and to scribe circles. They have two steel points on which the pencil clasp can be clamped. Bodies and thumb screws are bronze. Steel points, polished. Pencil clasp nickel plated. Average weight per set, ½ lb.

No.	Per Straight Edges Up to	Set
1	⅝ in.	$2.15
2	1 in.	2.60
3	1¼ in.	3.25

"Defiance" Handy Knife



For cutting rubber, paper, cloth, linoleum, leather, cardboard, etc. Japanned perforated iron handle shaped for a comfortable grip. Magazine in handle contains 5 razor edge blades. ½ doz. in a display box; wgt., 3¼ lbs.

No. 1299 5½ in. long $10.60 Doz.

HAND DRILLS

"Defiance"

Solid hardwood handle. 3-jaw steel chuck—¼ in. capacity. Solid gray iron gear and single steel pinion with machine cut teeth. All steel frame. Glossy red gear, natural wood color handle and knob. Bright steel parts. Weight each 1¼ lbs.

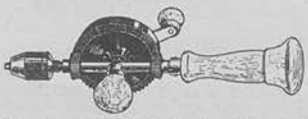
		Each
No. 1218	11½ in. long	$1.10

"Defiance"

Hollow hardwood handle with handy shutter top. Detachable side knob. Other specifications similar to No. 1218.

		Each
No. 1219	11⅜ in. long	$1.30

"Defiance"



Natural wood color knobs, handle and screw cap, red gear and bright steel parts. A very attractive tool. 3-jaw steel chuck—¼ in. capacity. Solid gray iron gear and steel pinion with machine cut teeth. All steel frame. 8 drill points in handle. Detachable side knob. Weight 1¼ lbs.

		Each
No. 1220	11½ in. long	$2.30

Stanley

Hollow handle. ¼ in. chuck capacity. Native hardwood handle with large screw cap contains 8 drill points 4/64 in. to 11/64 in. sizes. Detachable side knob. Handle, knob and gear lacquered red. Steel parts nickel plated, except chuck which is cadmium plated. Weight each, 1½ lbs.

		Each
No. 620	11⅝ in. long	$2.90

BREAST DRILLS

"Defiance"

Three-jaw chuck takes round shank twist drills 0 to ½ in. All steel frame. 2 speeds. Machine cut gear and pinion. Black handles, orange gear and bright steel parts. Weight each, 6½ lbs.

No. 1247½ 16 in. long $2.85 Ea.

Stanley

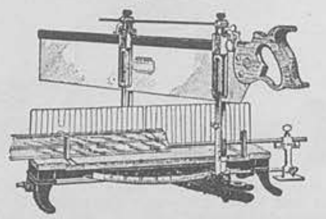
Universal jaws take round shanks up to ½ in. and taper shanks as large as Clark's No. 2 Expansive. Malleable iron frame. Two speeds easily changed. Ball thrust bearings. Level set in frame. Handle can be set for sweeps from 8 in. to 12 in. Bright parts nickel plated, frame Japanned, gear orange, black hardwood handles. Weight each, 5½ lbs.

No. 733 16½ in. long $7.30 Ea.

STANLEY TOOLS

MITRE BOXES

Stanley DeLuxe

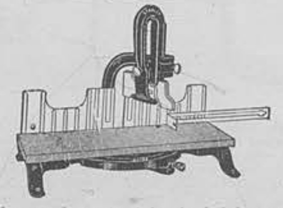


Back, frame and graduated quadrant are cast in one piece. The entire box is strongly braced and absolutely rigid. Legs are made of malleable iron which makes them practically unbreakable. Eye-appealing finish—base, legs and swivel are light blue, back is aluminum color, and board is bright orange.

A first quality back saw is furnished with each box.

No.	Back Saw	Each
246	26 x 4 in.	$29.65
358	28 x 5 in.	32.65

Stanley Open Front



Takes stock up to 4 in. in height and because of its open front extra wide boards can be sawed. Swivel arm has a latch pivot which engages in slots in frame for 4, 6 and 8 sided figures and in addition the swivel can be locked at any point desired. Can be used with either a back or panel saw. Adjustable gauge acts as stop for short work. Base swivel and yoke are black, board is orange. Weight, 17 lbs.

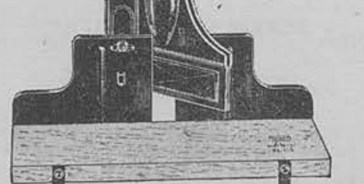
No. 150 (No Saw) $8.70 Ea.

Stanley Wood Frame

Saw guide can be quickly set and held at 0 (90°) window sill (9°) and for 4, 5, 6 and 8 sided figures. Used with either a back or panel saw—for cutting to exact depth use a back saw. Frame is made of laminated hardwood and weatherproofed. Weight, 7 lbs.

No. 115 (No Saw) $4.10 Ea.

Stanley Metal Frame



Strong and sturdy. Simple construction, few and easy adjustments. Can be used with either back or panel saw. Takes stock up to 3 in. in height. Saw guide can be set and quickly locked at any point between 45 and 95 degrees. Index plate is marked for angles 0 to 50 degrees. Back, saw guide and index plate made of heavy pressed metal, spot welded and ribbed for strength. Blued finish. Board is hard maple with clear lacquer finish. Weight, 5 lbs.

No. 116 (No Saw) $5.00 Ea.

SAW SETS

"Defiance" Plier Grip

For back and panel saws. Gives correct anvil setting for 5- to 11-point saws. Tool steel anvil and plunger. Lacquered blue. Weight, ¾ lb.

	Each
No. 422	$ .75

SAW SETS

Stanley Pistol Grip

Fit hand comfortably and give view of saw teeth. Readily adjustable to give greater or lesser set to saw teeth. Anvil is graduated so that same adjustment can be easily obtained for duplicate work. Body, lever and stop are malleable iron, finished black. Plunger and anvil are tool steel hardened and tempered. An attachment is furnished for setting circular saws.

"Defiance" Pistol Grip

For back and panel saws. Gives correct anvil setting for 5- to 11-point saws. Tool steel anvil and plunger. Lacquered red and green. Weight, 1 lb.

	Each
No. 432	$1.15

For Back and Panel Saws

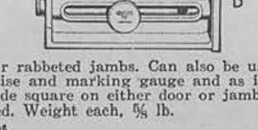
"Lifetime" Saw Set. Has new saw clamping feature. Capacity—18-gauge and thinner, with 10 points or less to the inch. Weight, 1 lb.

No. 42 $2.25 Ea.

BUTT GAUGES

Stanley Butt Gauges are used to mark the three measurements for butts in correct position on doors. With the use of one of these gauges no change of setting is necessary when hanging a number of doors.

For Rabbeted Jambs



For rabbeted jambs. Can also be used as a mortise and marking gauge and as inside or outside square on either door or jamb. Nickel plated. Weight each, ⅝ lb.

	Each
No. 95	$1.95

SCRAPERS

Cabinet—Raised Handles

Body and handles one piece cast iron Japanned. Blade can be adjusted for curve with thumb screw. Weight each, 1¾ lbs.

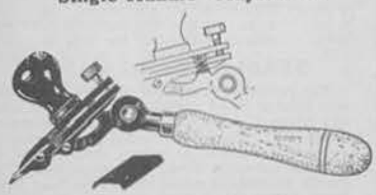
No.	Blade	Length	Each
80	2¾ in.	11½ in.	$1.25

Single Handle—Non-Adjustable

For heavy scraping work—floors, etc. Red hardwood handle. Japanned body. Weight each, 1⅝ lbs.

No.	Blade	Length	Each
282	3 in.	13 in.	$1.65

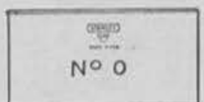
Single Handle—Adjustable



Spring cushion eliminates chatter and assures smooth cut. Handle can be tilted to give blade any angle desired. Holds flat blade and formed two-edge blade. The latter requires no burnishing. Red hardwood handle. Japanned body. Furnished with a regular and a formed blade. Weight each, 1¾ lbs.

No.	Blade	Length	Each
82	3 in.	12 in.	$1.85

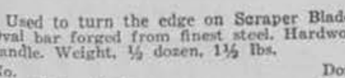
STANLEY HAND SCRAPERS



High grade steel, carefully heat treated for correct temper. Thickness .037 in. Average weight, ½ dozen, 1½ lbs.

No.	Width	Length	Doz.
0	2 in.	4 in.	$5.95
	2½ in.	5 in.	5.50
	3 in.	4 in.	5.50
	3 in.	5 in.	5.95
	3 in.	6 in.	6.85

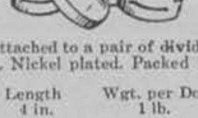
SCRAPER BLADE BURNISHER



Used to turn the edge on Scraper Blades. Oval bar forged from finest steel. Hardwood handle. Weight, ½ dozen, 1½ lbs.

No.		Doz.
176	3½ in. Blade	$9.75
186	5 in. Blade	10.85

PENCIL CLASPS



Can be attached to a pair of dividers to make a compass. Nickel plated. Packed 12 on a display card.

No.	Length	Wgt. per Doz.	Doz.
8	4 in.	1 lb.	$2.00

STANLEY TOOLS

SPOKE SHAVES

Cutters are made from high grade Steel, correctly tempered and sharpened. They are japan finished.

Double Iron—Improved

Cutter and cap iron are fastened by a thumb screw so as to bring even pressure on cutting edge and to allow adjustment without the use of a screw driver. Raised handles. Weight, ½ dozen, 4¼ lbs.

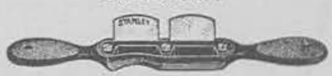
No.	Length	Cutter	Doz.
51	10 in.	2⅛ in.	$6.20

Adjustable—Raised Handle

Cutter is adjustable endwise and sidewise by means of thumb screws. Raised handles. Weight, ½ dozen, 4¼ lbs.

No.	Length	Cutter	Doz.
151	10 in.	2⅛ in.	$9.20

Two Cutters

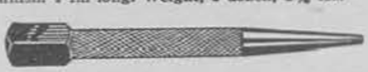


Two cutters and two cutter seats—one hollow and one straight. Straight handles. Weight, ½ dozen, 4¼ lbs.

No.	Length	Cutter	Doz.
60	11 in.	1½ in.	$10.90

"DEFIANCE" NAIL SETS

Square head. High grade tempered steel. Tips accurately cupped and chamfered. Blued finish. 4 in. long. Weight, 1 dozen, 1¼ lbs.



No.	Tip Sizes	Doz.
1211¾	1/32 in., 2/32 in.,	$1.25
	5/64 in., 3/32 in.,	1.25
	4/32 in., 5/32 in.	1.25

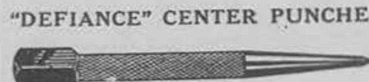
No.		
1211¾	Assortment. 4 each 2/32 in., 5/64 in., 3/32 in.......... Packed in a cardboard box	1.25

STANLEY NAIL SETS

Square head. Special tool steel hardened at both ends. Tips are cupped, chamfered and oil tempered. Polished head and tip. Blued finish. 4 in. long. Weight, 1 dozen, 1¼ lbs.

No.	Tip Sizes	Dozen	Tip Sizes	Dozen
11¾	1/32 in.	$1.75	2/32 in.	$1.50
	5/64 in.	1.50	3/32 in.	1.50
	4/32 in.	1.50	5/32 in.	1.75

"DEFIANCE" CENTER PUNCHES



Square head. Point perfectly centered. High grade tempered steel with body machine knurled. Blued finish. 4 in. long. Weight, 1 dozen, 1 lb.

No. 1210¾ ⅛ in. tip

STANLEY CENTER PUNCHES

Oval head. Point perfectly centered. High grade special tool steel carefully tempered. Machine knurled. Blued finish. 4 in. long. Weight, 1 dozen, 1 lb.

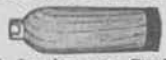
No.	Tip Sizes	Doz.
10	5/64 in., ⅛ in., 5/32 in.	$1.75

"HURWOOD" SCRATCH AWLS

Blade, shank and head one piece of steel. Wings on head and a rivet through blade lock blade in handle. Black hardwood handle has flat sides to keep it from rolling and to provide a good grip. Points hand forged and tempered. Weight, ½ dozen, 1 lb.

No.	Blade	Diameter	Doz.
6	2¾ in.	7/32 in.	$5.00
7	3½ in.	¼ in.	5.45

PEG AWL HAFTS



Hardwood. Leather top. Steel chuck. Furnished with chuck wrench. Weight, 1 dozen, 2 lbs.

		Doz.
No. 6	4 in. long	$4.20

Hardwood and shellacked. Steel Chuck. Furnished with chuck wrench. Weight one dozen, 1⅜ lbs.

		Doz.
No. 6½	3¾ in. long	$3.35

LEVEL SIGHTS

Used with a level as an inexpensive substitute for surveyor's instruments for leveling and aligning walls, running grades, fences, etc. Wrought brass. Black finish.

For wood and metal levels from ⅞ in. to 1⅝ in.

No.	Weight per Pair	Pair
138	⅝ lb.	$1.40

LINE LEVEL

Aluminum with a proved glass. Weighs less than ½ oz. Flat bottom. Packed in a transparent, composition container—6 in a display. Weight, ½ lb.

No.	Length	Doz.
187	3¼ in.	$6.30

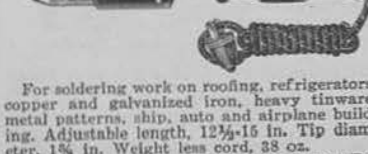
STANLEY ELECTRIC SOLDERING IRONS

Made of highest quality materials. Consist of four complete and replaceable parts: Pure copper soldering tip, a hermetically sealed heater, a cool adjustable handle, and 6 feet of approved heater cord with rubber attachment plug.

To adjust length of Stanley Soldering Irons, turn handle to left to loosen, slide along stem, turn right to tighten rigidly. Handles are made of hardwood and are ventilated. Tool resting stand, made of metal, is packed with each iron.

Ideal for service men. For high speed soldering on radios, telephones, appliances, jewelry, etc. For light-medium jobs in home, factory and schools. Adjustable length, 11⅝-13⅞ in. Tip diameter, 9/16 in. Weight less cord, 13 oz.

No.	Watts	Price
No. 340	95 watts	$8.15 Ea.



For soldering work on roofing, refrigerators, copper and galvanized iron, heavy tinware, metal patterns, ship, auto and airplane building. Adjustable length, 12½-15 in. Tip diameter, 1⅜ in. Weight less cord, 38 oz.

No.	Watts	Price
No. 380	315 watts	$15.20 Ea.

SOCKET CHISELS

"Defiance"

Blade and socket forged in one piece from high grade tool steel, carefully heat treated and tempered and cross ground to perfectly proportioned bevels. Seasoned hickory handle capped with leather washers.

Butt—3½ in. Blades

Average weight, ½ dozen, 1¾ lbs.

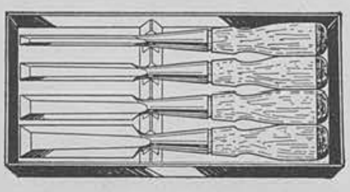
No.	Width	Overall	Doz.
1251	¼ in.	9½ in.	$8.45
	⅜ in.	9½ in.	9.25
	½ in.	9½ in.	9.25
	⅝ in.	9½ in.	10.15
	¾ in.	9½ in.	10.15
	1 in.	10 in.	10.75
	1¼ in.	10 in.	11.80
	1½ in.	10 in.	13.10

Pocket—4½ in. Blades

Average weight, ½ dozen, 2¼ lbs.

No.	Width	Overall	Doz.
1241	¼ in.	12 in.	$10.00
	½ in.	12 in.	10.00
	¾ in.	12 in.	10.65
	1 in.	12 in.	11.55

"Defiance" Assortments



No. 1254A Assortment—Set of 4 Socket Chisels in cardboard display box. 1 each No. 1251—¼, ½, ¾ and 1 in. sizes. Weight of Assortment, 1¼ lbs. **$3.25 Set**

No. 1254B Assortment—Set of 3 Socket Chisels in cardboard display box. 1 each No. 1251—½, ¾ and 1 in. sizes. Weight of Assortment, 1 lb. **$2.50 Set**

SOCKET CHISELS

Stanley

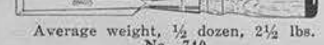
Blade and socket forged in one piece—no welded socket—from finest chisel steel. Carefully heat treated, tempered and scleroscope tested. Selected hickory handles, comfortably shaped and capped with hard leather. High color mirror finish.

Butt—3¼ in. Blades

Average weight, ½ dozen, 2 lbs.
No. 750

Width	Overall	Dozen	Width	Overall	Dozen
⅛ in.	9½ in.	$12.50	⅞ in.	9½ in.	$15.70
¼ in.	9½ in.	12.50	1 in.	10 in.	16.10
⅜ in.	9½ in.	12.50	1¼ in.	10 in.	17.70
½ in.	9½ in.	12.50	1½ in.	10 in.	18.85
⅝ in.	9½ in.	13.70	1¾ in.	10 in.	20.45
¾ in.	9½ in.	14.10	2 in.	10¼ in.	21.25

Pocket—4½ in. Blade



Average weight, ½ dozen, 2½ lbs.
No. 740

Width	Overall	Dozen	Width	Overall	Dozen
⅛ in.	12 in.	$12.50	¾ in.	12 in.	$14.10
¼ in.	12 in.	12.50	1 in.	12 in.	16.10
⅜ in.	12 in.	12.50	1¼ in.	12 in.	17.70
½ in.	12 in.	12.50	1½ in.	12 in.	18.85
⅝ in.	12 in.	13.70	2 in.	12½ in.	21.25

STANLEY TOOLS

SOCKET CHISELS

Firmer—6 in. Blades

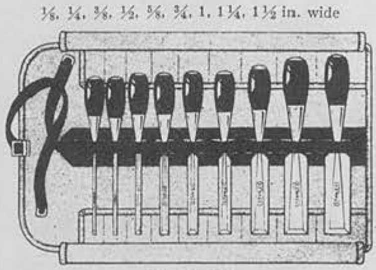
Average weight, ½ dozen, 3½ lbs.
No. 720

Width	Overall	Dozen	Width	Overall	Dozen
¼ in.	13 in.	$12.50	1 in.	13½ in.	$16.10
⅜ in.	13 in.	12.50	1¼ in.	13½ in.	17.70
½ in.	13 in.	12.50	1½ in.	13½ in.	18.85
⅝ in.	13 in.	13.70	2 in.	15 in.	21.25
¾ in.	13 in.	14.10			

Chisel Assortment

Sets of 9 Chisels No. 50 Butt

⅛, ¼, ⅜, ½, ⅝, ¾, 1, 1¼, 1½ in. wide



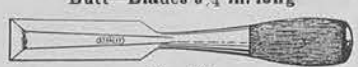
Set No. 220

"EVERLASTING" CHISELS

Wood Handles

Head, shank and blade of these Chisels are forged from one piece of steel and are treated carefully to insure unusual strength and a keen cutting edge. Selected hickory handles. Blades are polished. $17.55 Set

Butt—Blades 3¼ in. long



No. 50

Width	Overall	Dozen	Width	Overall	Dozen
⅛ in.	8 in.	$1.65	⅞ in.	8 in.	$1.85
¼ in.	8 in.	1.65	1 in.	8 in.	1.85
⅜ in.	8 in.	1.65	1¼ in.	9 in.	2.10
½ in.	8 in.	1.65	1½ in.	9 in.	2.45
⅝ in.	8 in.	1.75	1¾ in.	9 in.	2.65
¾ in.	8 in.	1.75	2 in.	9 in.	3.00

Pocket—Blades 4½ in. long

No. 40

Blade	Overall	Dozen	Blade	Overall	Dozen
⅛ in.	9 in.	$1.75	⅞ in.	9 in.	$1.95
¼ in.	9 in.	1.75	1 in.	9 in.	1.95
⅜ in.	9 in.	1.75	1¼ in.	10¼ in.	2.20
½ in.	9 in.	1.75	1½ in.	10¼ in.	2.55
⅝ in.	9 in.	1.85	1¾ in.	10¼ in.	2.80
¾ in.	9 in.	1.85	2 in.	10¼ in.	3.00

Firmer—Blades 5½ in. long

No. 20

Blade	Overall	Dozen	Blade	Overall	Dozen
⅛ in.	11¼ in.	$1.85	⅞ in.	11¼ in.	$2.20
¼ in.	11¼ in.	1.85	1 in.	11¼ in.	2.20
⅜ in.	11¼ in.	1.85	1¼ in.	12¼ in.	2.45
½ in.	11¼ in.	1.85	1½ in.	12¼ in.	2.80
⅝ in.	11¼ in.	1.95	1¾ in.	12¼ in.	3.00
¾ in.	11¼ in.	1.95	2 in.	12¼ in.	3.25

GLAZIERS' CHISELS

For easing up window sash. Adapted for cleaning out old putty from window sashes, also smoothing and preparing them for the glass. Weight, ½ doz., 5½ lbs.
No. R55 Blade, 2 in. wide $2.80 Ea.

"EVERLASTING" CHISELS

Composition Handles

Head, shank, ferrule and blade are forged complete—no mechanical joints. Handle is made of a special rubber composition, which possesses unusual resistance to breakage and is not affected by heat or moisture. Black satin finish with trademarks filled in orange. Blades are carefully polished.

Bevel Edge Butt
Blades 3¼ inches long

No. R50

Width	Overall	Each	Width	Overall	Each
⅛ in.	7¾ in.	$1.65	⅞ in.	8 in.	$1.85
¼ in.	7¾ in.	1.65	1 in.	8 in.	1.85
⅜ in.	7¾ in.	1.65	1¼ in.	8½ in.	2.10
½ in.	7¾ in.	1.65	1½ in.	8¾ in.	2.45
⅝ in.	7¾ in.	1.75	1¾ in.	9 in.	2.65
¾ in.	7¾ in.	1.75	2 in.	9 in.	3.00

Bevel Edge Pocket
Blade 4½ in. long

No. R40

Width	Overall	Each	Width	Overall	Each
⅛ in.	9 in.	$1.75	⅞ in.	9¼ in.	$1.95
¼ in.	9 in.	1.75	1 in.	9¼ in.	1.95
⅜ in.	9 in.	1.75	1¼ in.	9¾ in.	2.20
½ in.	9 in.	1.75	1½ in.	10 in.	2.55
⅝ in.	9 in.	1.85	1¾ in.	10¼ in.	2.80
¾ in.	9 in.	1.85	2 in.	10¼ in.	3.00

STANLEY TANG CHISELS

For carpenters, cabinet makers, etc. Handle and bolster blend together like a socket chisel, but there is no socket or ferrule. Handle is made of "Stanloid," toughest non-metallic substance known. A crown shaped steel cap centers hammer blows and distributes force evenly to cutting edge. Blade and tang forged from finest chisel steel, carefully heat treated and tempered. Two long forged ears on the tang lock handle against turning. Mirror finish blades.

Distinctive Butt Chisel
Thin Blade 3 in. long

No. 60

Width	Diameter	Each	Width	Diameter	Each
¼ in.	7⅞ in.	$1.75	¾ in.	8¼ in.	$1.85
⅜ in.	7⅞ in.	1.75	1 in.	8⅜ in.	1.95
½ in.	7⅞ in.	1.75	1¼ in.	8½ in.	2.20
⅝ in.	8¼ in.	1.85	1½ in.	9 in.	2.55

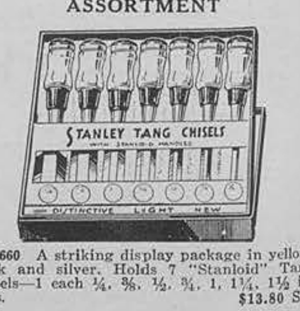
Swedish Pattern Paring Chisel
Thin Blade 2½ in. long

No. 61

Width	Diameter	Each	Width	Diameter	Each
¼ in.	7⅜ in.	$1.65	¾ in.	7¾ in.	$1.75
⅜ in.	7½ in.	1.65	1 in.	8 in.	1.85
½ in.	7⅝ in.	1.65	1¼ in.	8¼ in.	2.10
⅝ in.	7¾ in.	1.75	1½ in.	8⅜ in.	2.45

No. 661 Asst. contains 7 No. 61 Chisels—1 each ¼, ⅜, ½, ¾, 1, 1¼ and 1½ inch sizes. Packed in yellow, black and silver counter display box. $13.00 Set

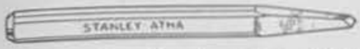
STANLOID CHISEL ASSORTMENT



No. 660 A striking display package in yellow, black and silver. Holds 7 "Stanloid" Tang Chisels—1 each ¼, ⅜, ½, ¾, 1, 1¼, 1½ in. sizes. $13.80 Set

"STANLEY-ATHA" CHISELS

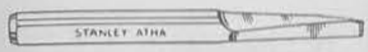
Diamond Point Chisels



Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Bit	Stock	Length	Each
654	1/8 in.	3/8 in.	6 in.	$ .55
655	1/4 in.	1/2 in.	6 1/2 in.	.65
656	3/8 in.	5/8 in.	7 in.	.75

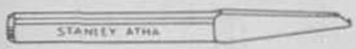
Cape Chisels



Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Bit	Stock	Length	Each
650	1/8 in.	3/8 in.	6 in.	$ .55
651	1/4 in.	1/2 in.	6 1/2 in.	.65
652	3/8 in.	5/8 in.	7 in.	.75

Round Nose Chisels



Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Bit	Stock	Length	Each
661	1/4 in.	1/2 in.	6 1/2 in.	$ .65
662	3/8 in.	5/8 in.	7 in.	.75

"STANLEY-ATHA" RIVET BUSTERS

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

A useful tool for dismantling old cars.

No.	Size of Stock	Width of Cut	Length	Each
628	3/4 in.	5/8 in.	12 in.	$1.45
629	7/8 in.	3/4 in.	18 in.	2.25

"STANLEY-ATHA" LINING UP BAR

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Point	Stock	Length	Each
624	1/4 in.	1/2 in.	12 in.	$ .80

"STANLEY-ATHA" PUNCHES

Pin Punch

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Point	Stock	Length	Each
645	4/32 in.	3/8 in.	6 in.	$ .45
646	6/32 in.	1/2 in.	6 in.	.50
647	8/32 in.	1/2 in.	6 in.	.50
648	10/32 in.	5/8 in.	8 in.	.65

Long Tapered Punch

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Point	Stock	Length	Each
630	5/32 in.	3/8 in.	8 in.	$ .60
631	6/32 in.	1/2 in.	9 in.	.65
632	8/32 in.	5/8 in.	10 1/2 in.	.80

Prick

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Stock	Length	Each
635	3/8 in.	5 in.	$ .40
636	1/2 in.	5 1/2 in.	.45

Center Punches

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

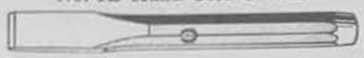
No.	Stock	Length	Each
637	3/8 in.	5 in.	$ .40
638	1/2 in.	5 in.	.45

Hand Punches

Deluxe quality. Drop forged from electric furnace, chrome vanadium alloy steel, hammer drawn, hardened and carefully tempered for toughness and strength. Chromium plated finish. Highly polished heads and tapers. Special shape prevents rolling.

No.	Point	Stock	Length	Each
640	1/16 in.	3/8 in.	6 in.	$ .40
641	1/8 in.	1/2 in.	6 in.	.45
642	3/16 in.	5/8 in.	8 in.	.65

No. 1B Hand Cold Chisels



Forged from silicon manganese alloy steel and carefully hardened and tempered. Bits hammer drawn and toughened. Natural finish with polished bit and head.

All packed 1/2 dozen, except 1/4 in., 3/8 in. and 1/2 in. sizes which are packed 1 dozen. Specify number, length and size of stock.

Stock	Bit	Length	Dozen
1/4 in.	5/16 in.	5 in.	$2.10
3/8 in.	7/16 in.	5 1/2 in.	2.60
1/2 in.	5/8 in.	6 in.	3.35
5/8 in.	3/4 in.	6 1/2 in.	4.20
3/4 in.	7/8 in.	7 1/2 in.	5.60
7/8 in.	1 in.	8 in.	7.25
1 in.	1 1/4 in.	8 1/2 in.	8.35
3/4 in.	7/8 in.	12 in.	8.50
7/8 in.	1 in.	18 in.	10.95

No. 6A Machine Punches

All packed 1 dozen except 8/32 in. and 10/32 in. sizes which are packed 1/2 dozen. Specify number, diameter of point and size of stock.

Point	Stock	Length	Dozen
4/32 in.	3/8 in.	5 3/4 in.	$4.75
5/32 in.	3/8 in.	5 3/4 in.	4.75
6/32 in.	1/2 in.	6 1/8 in.	5.00
8/32 in.	5/8 in.	7 in.	6.30
10/32 in.	3/4 in.	7 1/2 in.	7.90

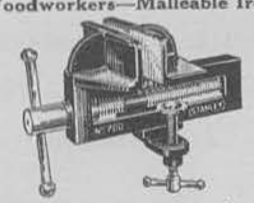
VISES

"Defiance" Bench

Well made tools finished bright red. Machine cut steel screw and two steel supporting rods impart strength and sturdiness. Anti-slack spring takes out play in jaws. Jaws are machined.

No. 1207
Jaws 1 5/8 in.
wide open to
2 in.
Weight each,
2 lbs. $1.00 Ea.

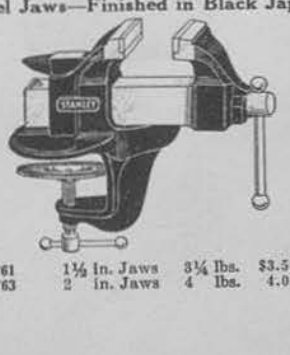
Stanley Woodworkers—Malleable Iron



Clamped to a carpenter's horse it will hold doors, etc., or it can be attached to a bench for ordinary work. Jaws will hold work vertically or horizontally. Japanned. 4 5/8 in. jaws open to 4 in. Weight, 5 1/2 lbs.

No. 700 $3.95 Ea.

Clamp Base
Steel Jaws—Finished in Black Japan



No. 761	1 1/2 in. Jaws	3 1/4 lbs.	$3.50 Ea.
No. 763	2 in. Jaws	4 lbs.	4.05 Ea.

SPALLING or STONE HAMMERS
Single Face

	Length	Face	Bit
8-lb. weight:	8 in.	2¼ x 1½ in.	2¼ in.
16-lb. weight:	9⅝ in.	2¾ x 2 in.	2¾ in.

No.	Size	
710	8 lbs.	$1.75 Ea.
	10 lbs.	2.25 Ea.
	12 lbs.	2.70 Ea.
	14 lbs.	3.10 Ea.
	16 lbs.	3.55 Ea.
	18 lbs.	4.00 Ea.

SPALLING or STONE HAMMERS
Double Face

8-lb. weight: Length 7½ in. Face 2¼ x 1¼ in.

No.	Size	
720	8 lbs.	$1.75 Ea.
	10 lbs.	2.25 Ea.
	12 lbs.	2.70 Ea.

STONE SLEDGES
Oval Face

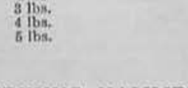
	Length	Face	Bit
8-lb. weight:	7⅛ in.	2⅛ in.	2⅛ in.
16-lb. weight:	8⅝ in.	2⅞ in.	2⅞ in.

No.	Size	
740	8 lbs.	$1.40 Ea.
	10 lbs.	1.70 Ea.
	12 lbs.	1.95 Ea.
	14 lbs.	2.25 Ea.
	16 lbs.	2.60 Ea.

MASONS' HAMMERS

No.	Size	
670	3 lbs.	$1.15 Ea.
	4 lbs.	1.20 Ea.
	5 lbs.	1.50 Ea.

STRIKING HAMMERS
Nevada or Long Pattern



4-lb. weight: Length 6⅛ in., Face 1½ in.
16-lb. weight: Length 8½ in., Face 2⅝ in.

No.	Size	
750	3 lbs.	$0.85 Ea.
	4 lbs.	1.00 Ea.
	5 lbs.	1.10 Ea.
	6 lbs.	1.20 Ea.
	7 lbs.	1.30 Ea.
	8 lbs.	1.40 Ea.
	10 lbs.	1.70 Ea.
	12 lbs.	1.95 Ea.
	14 lbs.	2.20 Ea.
	16 lbs.	2.60 Ea.

STANLEY-ATHA SLEDGES
Oregon or Short Pattern

8-lb. weight. Length, 6¼ in. Face, 2 in.

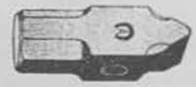
No.	Size	
No. 760	4 lbs.	$1.00 Ea.
	6 lbs.	1.25 Ea.
	8 lbs.	1.50 Ea.
	10 lbs.	1.75 Ea.
	12 lbs.	2.10 Ea.

HAND DRILLING HAMMERS
New England Pattern

3-lb. weight: Length 4⅜ in., Face 1⅜ in.
4-lb. weight: Length 4⅞ in., Face 1 7/16 in.

No.	Size	
780	2 lbs.	$1.00 Ea.
	2½ lbs.	1.15 Ea.
	3 lbs.	1.15 Ea.
	3½ lbs.	1.20 Ea.
	4 lbs.	1.25 Ea.

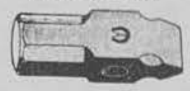
BLACKSMITHS' SLEDGES
Cross Pein



8-lb weight:
Length 7 in., Face 2¼ in., Pein 1¼ in.

No.	Size	
830	6 lbs.	$1.40 Ea.
	8 lbs.	1.60 Ea.
	10 lbs.	1.75 Ea.
	12 lbs.	2.15 Ea.

BLACKSMITHS' SLEDGES
Straight Pein



	Length	Dia. Face	Pein
8-lb. weight	7 in.	2¼ in.	2¼ in.
14-lb. weight	8½ in.	2¾ in.	2¾ in.

	Size	
No. 840	8 lbs.	$1.60 Ea.
	10 lbs.	1.75 Ea.
	12 lbs.	2.15 Ea.
	14 lbs.	2.65 Ea.
	16 lbs.	2.95 Ea.

BLACKSMITHS' SLEDGES
Double Face

8-lb. weight: Length 6½ in. Face 2¼ in.

No.	Size	
850	8 lbs.	$1.40 Ea.
	10 lbs.	1.70 Ea.
	12 lbs.	1.95 Ea.

BLACKSMITHS' HAND HAMMERS
Western Pattern-Cross Pein

	Length	Dia. Face	Pein
1½-lb. weight	4¼ in.	1 5/16 in.	1 5/16 in.
2½-lb. weight	4⅞ in.	1 1/2 in.	1 1/2 in.
4 -lb. weight	5¾ in.	1 3/4 in.	1 3/4 in.

	Size	
No. 860	1½ lbs.	$0.60 Ea.
	2 lbs.	.60 Ea.
	2½ lbs.	.70 Ea.
	3 lbs.	.85 Ea.
	4 lbs.	1.05 Ea.

TRACK MAUL
Regular Pattern

	Length	Dia. Small Face	Dia. Large Face
6-lb. weight	9½ in.	1 in.	1½ in.
8-lb. weight	10½ in.	1⅛ in.	1½ in.

	Size	
No. 920	6 lbs.	$1.20 Ea.
	8 lbs.	1.40 Ea.
	10 lbs.	1.70 Ea.

TOP OR SHIP MAULS

	Length	Diameter Small Face	Diameter Large Face
4-lb. weight:	8¼ in.	⅝ in.	1⅜ in.
5-lb. weight:	8¾ in.	7/16 in.	1⅞ in.

No.	Size	
930	4 lbs.	$1.50 Ea.
	5 lbs.	1.60 Ea.
	6 lbs.	1.85 Ea.

WOODCHOPPERS' MAULS
Oregon Pattern. Single Bit Axe Eye

	Length	Head	Bit
6-lb. weight:	8 in.	1⅞ in.	3¾ in.
8-lb. weight:	8¾ in.	2⅛ in.	4 in.

No.	Size	
960B	6 lbs.	$1.40 Ea.
	7 lbs.	1.60 Ea.
	8 lbs.	1.70 Ea.

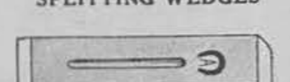
SPLITTING WEDGES

Truckee Pattern Straight Bit with Groove. Being narrow they are suitable for hardwood.

	Length	Head	Bit
4-lb. weight:	9¾ in.	1¼ in.	1⅝ in.
6-lb. weight:	11⅛ in.	1½ in.	1⅞ in.

No.	Size	
980	4 lbs.	$0.75 Ea.
	5 lbs.	.90 Ea.
	6 lbs.	1.00 Ea.
	7 lbs.	1.20 Ea.

SPLITTING WEDGES



Common Square Head. Straight Bit with Groove.

No.	Size	
975	4 lbs.	$0.45 Ea.
	5 lbs.	.55 Ea.
	6 lbs.	.65 Ea.
	7 lbs.	.75 Ea.

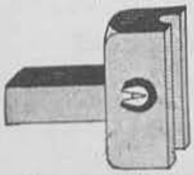
BLACKSMITHS' ANVIL TOOLS

SWAGES

Top Swage

No.	Size	Weight	
1190	¼ in.	2½ lbs.	$1.30 Ea.
	⅜ in.	2½ lbs.	1.30 Ea.
	½ in.	2½ lbs.	1.30 Ea.
	⅝ in.	2½ lbs.	1.45 Ea.
	¾ in.	3¼ lbs.	1.45 Ea.
	⅞ in.	3¼ lbs.	1.65 Ea.
	1 in.	3¼ lbs.	1.65 Ea.
	1¼ in.	3¾ lbs.	1.75 Ea.
	1½ in.	4¼ lbs.	2.00 Ea.
	1¾ in.	4¾ lbs.	2.10 Ea.
	2 in.	4¾ lbs.	2.35 Ea.

Bottom Swage



No.	Size	Weight	
1200	¼ in.	2 lbs.	$1.30 Ea.
	⅜ in.	2 lbs.	1.30 Ea.
	½ in.	2½ lbs.	1.30 Ea.
	⅝ in.	2½ lbs.	1.40 Ea.
	¾ in.	2½ lbs.	1.40 Ea.
	⅞ in.	2½ lbs.	1.65 Ea.
	1 in.	3 lbs.	1.65 Ea.
	1¼ in.	3 lbs.	1.85 Ea.
	1½ in.	3½ lbs.	2.00 Ea.
	1¾ in.	4 lbs.	2.10 Ea.
	2 in.	4½ lbs.	2.35 Ea.

FULLERS

Fullers are used for necking and grooving forgings, and also for drawing down a forging to a smaller size.

Top Fuller

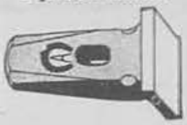
No.	Size	Weight	
1210	¼ in.	2½ lbs.	$1.40 Ea.
	⅜ in.	2¾ lbs.	1.40 Ea.
	½ in.	2¾ lbs.	1.40 Ea.
	¾ in.	2¾ lbs.	1.45 Ea.
	1 in.	3 lbs.	1.70 Ea.
	1¼ in.	3½ lbs.	1.85 Ea.
	1½ in.	3½ lbs.	2.00 Ea.
	1¾ in.	4 lbs.	2.10 Ea.
	2 in.	4½ lbs.	2.35 Ea.

Bottom Fuller

No.	Size	Weight	
1220	¼ in.	2¼ lbs.	$1.40 Ea.
	⅜ in.	2¼ lbs.	1.40 Ea.
	½ in.	2¼ lbs.	1.40 Ea.
	¾ in.	2½ lbs.	1.45 Ea.
	1 in.	2½ lbs.	1.70 Ea.
	1¼ in.	3½ lbs.	1.85 Ea.
	1½ in.	3½ lbs.	2.00 Ea.
	1¾ in.	4 lbs.	2.10 Ea.
	2 in.	4½ lbs.	2.35 Ea.

BLACKSMITHS' ANVIL TOOLS

Square Flatters



For smoothing and finishing flat forgings. Unexcelled for quality. Finished in red and black with faces polished.

No.	Size	Weight	
1230	2 in.	2 lbs.	$1.50 Ea.
	2½ in.	3¼ lbs.	2.00 Ea.
	3 in.	4½ lbs.	2.50 Ea.
	3½ in.	6 lbs.	3.35 Ea.

SET HAMMERS

For setting down the metal in a forging to form a square corner.

No.	Size	Weight	
1250	1¼ in.	2 lbs.	$1.35 Ea.
	1½ in.	3¼ lbs.	1.70 Ea.
	1¾ in.	4½ lbs.	2.10 Ea.

BLACKSMITHS PUNCHES

Round

No.	Size	Length	Weight	
1270	¼ in.	7¼ in.	1⅜ lbs.	$1.05 Ea.
	⅜ in.	7½ in.	1½ lbs.	1.05 Ea.
	½ in.	7¾ in.	1⅞ lbs.	1.05 Ea.
	⅝ in.	8 in.	2⅛ lbs.	1.25 Ea.
	¾ in.	8¼ in.	2¾ lbs.	1.40 Ea.
	⅞ in.	8½ in.	3½ lbs.	1.50 Ea.
	1 in.	8¾ in.	4½ lbs.	1.75 Ea.

BLACKSMITHS CHISELS

Cold Chisels

Silicon Manganese Alloy Steel

No.	Size	Length	Weight	
1290	1¼ in.	6½ in.	2 lbs.	$1.10 Ea.
	1⅜ in.	6¾ in.	2½ lbs.	1.20 Ea.
	1½ in.	7 in.	3 lbs.	1.50 Ea.
	1¾ in.	8⅛ in.	5 lbs.	2.30 Ea.

Hot Chisels

No.	Size	Length	Weight	
1300	1¼ in.	7⅜ in.	2 lbs.	$1.10 Ea.
	1⅜ in.	7¾ in.	2½ lbs.	1.20 Ea.
	1½ in.	8¼ in.	3 lbs.	1.50 Ea.
	1¾ in.	9¾ in.	5 lbs.	2.30 Ea.

HARDIES

A hardie is set in the anvil and used for cutting off forgings.

No.	Size	Width Bit	Weight	
1310	⅝ in.	1⅝ in.	1 lb.	$0.65 Ea.
	¾ in.	1⅞ in.	1¼ lbs.	.75 Ea.
	⅞ in.	2 in.	1¾ lbs.	.90 Ea.
	1 in.	2¼ in.	2 lbs.	1.00 Ea.
	1⅛ in.	2¼ in.	2½ lbs.	1.25 Ea.
	1¼ in.	2½ in.	2¾ lbs.	1.40 Ea.

STANLEY-ATHA TONGS

Straight Lip to Hold Squares

These tongs have a "V" notch in each jaw so that they can firmly hold square or round work.

No.	Jaw Capacity Size of Squares	Length	Weight per doz.	
11A	¼ in.	18 in.	32 lbs.	$1.15 Ea.
11C	⅜ in.	20 in.	34 lbs.	1.25 Ea.
11D	½ in.	20 in.	34 lbs.	1.25 Ea.
11E	⅝ in.	22 in.	37 lbs.	1.40 Ea.
11F	¾ in.	22 in.	37 lbs.	1.40 Ea.
11G	⅞ in.	24 in.	39 lbs.	1.55 Ea.
11H	1 in.	24 in.	39 lbs.	1.55 Ea.
11J	1½ in.	26 in.	42 lbs.	2.10 Ea.

Curved Lip—Fluted Jaws

These tongs are used for holding bolts or other round work. The opening between the jaws and the hinge allows ample space for the head of a bolt.

No.	Jaw Capacity Size Rounds	Length	Weight per doz.	
12A	¼ in.	18 in.	32 lbs.	$1.30 Ea.
12C	⅜ in.	20 in.	34 lbs.	1.40 Ea.
12D	½ in.	20 in.	34 lbs.	1.40 Ea.
12E	⅝ in.	22 in.	37 lbs.	1.65 Ea.
12F	¾ in.	22 in.	37 lbs.	1.65 Ea.
12G	⅞ in.	24 in.	39 lbs.	1.75 Ea.
12H	1 in.	24 in.	39 lbs.	1.75 Ea.
12J	1½ in.	26 in.	42 lbs.	2.10 Ea.

Straight Lip

Used for holding thin flat work. On account of the heavy stock in the jaws, they may be shaped by the blacksmith to suit his individual needs.

No.	Size	Weight per doz.	
10	16 in.	30 lbs.	$1.10 Ea.
	18 in.	33 lbs.	1.15 Ea.
	24 in.	40 lbs.	1.30 Ea.

Double Pick Up

Used for picking up hot work, either flat or round.

No.	Size	Weight per doz.	
13	18 in.	31 lbs.	$1.60 Ea.
	24 in.	38 lbs.	1.85 Ea.

Single Pick Up

Used for picking up hot work, either flat or round. Larger jaws to handle heavier work.

No.	Size	Weight per doz.	
14	18 in.	31 lbs.	$1.60 Ea.
	24 in.	38 lbs.	1.85 Ea.

Rivet

Used for handling hot rivets.

No.	Size	Weight per doz.	
15	18 in.	31 lbs.	$1.75 Ea.
	20 in.	33 lbs.	1.80 Ea.
	22 in.	36 lbs.	1.85 Ea.
	24 in.	38 lbs.	2.10 Ea.

HACK Sterling SAWS

TUNGSTEN ALLOY STEEL
All-Hard Hand

Length Inches	Width Inches	Gauge	Teeth per Inch				Per Gross
8	7-16	.025"		18	24	32	$ 8.00
10	1-2	.025"	14	18	24	32	10.00
12	1-2	.025"	14	18	24	32	12.00
12	9-16	.025"	14	18	24		13.50

Flexible Hand

8	7-16	.025"		18	24	32	$ 8.00
10	1-2	.025"	14	18	24	32	10.00
12	1-2	.025"	14	18	24	32	12.00
12	9-16	.025"	14	18	24		13.50

All-Hard Power

Length Inches	Width Inches	Gauge	Teeth per Inch				Per Gross
12	5/8	.032"			14	18	$16.20
	3/4	.032"			14	18	19.44
14	3/4	.032"			14		22.68
12	3/4	.049"	10		14		24.48
	1	.049"	10		14		32.64
14	3/4	.049"	10		14		28.56
	1	.049"	10		14		38.08
	1 1/4	.065"	10				58.80
17	1	.049"	10		14		46.24
	1 1/4	.065"	10				71.40
18	1 1/4	.065"	10				75.60
21	1 1/2	.065"	10				105.84
24	1 1/2	.065"	10				120.96

HIGH SPEED STEEL
All-Hard Hand

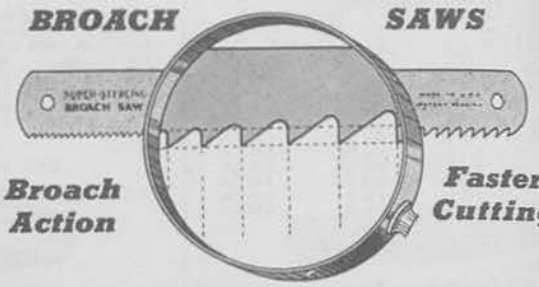
Length Inches	Width Inches	Gauge	Teeth per Inch				Per Dozen	Per Gross
10	9-16	.025"		18	24	32	$3.36	$40.32
12	9-16	.025"	14	18	24	32	4.08	48.96

All-Hard Power

Length Inches	Width Inches	Gauge	Teeth per Inch				Per Dozen	Per Gross
12	1	.049"				14	$14.40	$172.80
	1	.065"		6	10		14.40	172.80
14	1	.049"				14	16.80	201.60
	1	.065"		6	10		16.80	201.60
	1 1/4	.065"	4	6	10		21.00	252.00
17	1	.049"				14	20.40	244.80
	1	.065"		6	10		20.40	244.80
	1 1/4	.065"	4	6	10		25.50	306.00
18	1	.065"			10		21.60	259.20
	1 1/4	.065"	4	6	10		27.00	324.00
	1 1/2	.072"	4	6			35.64	427.68
21	1 1/2	.065"	4	6	10		37.80	453.60
	2	.072"	4	6			55.44	665.28
24	1 1/2	.065"		6	10		43.20	518.40
	2	.072"	4	6			63.36	760.32

Super-Sterling

BROACH SAWS



Broach Action — **Faster Cutting**

All-Hard Hand

Length Inches	Width Inches	Gauge	Teeth	Per Dozen	Per Gross
10"	9-16	.025	18/14	$3.84	$46.08
12"	9-16	.025	18/14	4.56	54.72

All-Hard Power

12"	1"	.065	10/6	14.40	172.80
14"	1"	.065	10/6	16.80	201.60
14"	1 1/4"	.065	10/6	21.00	252.00

Standard Teeth

Flexible

UNBREAKABLE

Length Inches	Width Inches	Gauge	Teeth per Inch				Per Dozen	Per Gross
10	9-16	.025"		18	24	32	$3.36	$40.32
12	9-16	.025"	14	18	24	32	4.08	48.96

Broach Type Teeth

Flexible

UNBREAKABLE

10	9-16	.025"	18/14	3.84	46.08
12	9-16	.025"	18/14	4.56	54.72

These saws are the hard-edge, flexible-back type. The blade is solid genuine high speed steel. High speed blade efficiency is attained without the risk of excessive breakage of a more expensive tool. The full life of the saw is assured, and every blade is guaranteed against breakage in regular use in a hand frame.

DISSTON DI-MOL
Hack Saw Blades

Disston Di-Mol Hack Saw Blades produced only by Disston, are the product of careful research and experimentation—the most recent development of a general purpose blade. Stamina, efficiency, value, economy are built into every blade.

It is the blade the metal cutting industry has been hoping for.

Where carbon or molybdenum hack saw blades have previously been used, Di-Mol Blades prove tougher, stronger, every way superior—taking extreme abuse in hand work and withstanding undue strains in machine use.

Look for the name Di-Mol on the orange band. It's a symbol of Disston quality.

BLADES FOR HAND USE

No.	Length Inches	Width Inches	Thick-ness	No. Teeth Per Inch	Price Per Gross	Weight Per Gross Lbs.
D-M 1018	10	½	.025	18	$40.00	5
D-M 1024	10	½	.025	24	40.00	5
D-M 1032	10	½	.025	32	40.00	5
D-M 1214	12	½	.025	14	48.00	6½
D-M 1218	12	½	.025	18	48.00	6½
D-M 1224	12	½	.025	24	48.00	6½
D-M 1232	12	½	.025	32	48.00	6½

BLADES FOR POWER MACHINES

No.	Length Inches	Width Inches	Thick-ness	No. Teeth Per In.	Price Per Gross	Weight Per Gross Lbs.
D-M 12194	12	1	.049	14	$120.96	25
D-M 12156	12	1	.065	6	120.96	31½
D-M 12150	12	1	.065	10	120.96	31½
D-M 14194	14	1	.049	14	141.12	27½
D-M 14156	14	1	.065	6	141.12	35½
D-M 14150	14	1	.065	10	141.12	35½
D-M 14454	14	1¼	.065	4	176.40	47
D-M 14456	14	1¼	.065	6	176.40	47
D-M 14450	14	1¼	.065	10	176.40	47
D-M 17194	17	1	.049	14	171.36	35
D-M 17156	17	1	.065	6	171.36	44½
D-M 17150	17	1	.065	10	171.36	44½
D-M 17454	17	1¼	.065	4	214.20	56
D-M 17456	17	1¼	.065	6	214.20	56
D-M 17450	17	1¼	.065	10	214.20	56
D-M 18150	18	1	.065	10	181.44	47
D-M 18454	18	1¼	.065	4	226.80	61
D-M 18456	18	1¼	.065	6	226.80	61
D-M 18450	18	1¼	.065	10	226.80	61
D-M 21254	21	1½	.065	4	317.52	85
D-M 21256	21	1½	.065	6	317.52	85
D-M 21250	21	1½	.065	10	317.52	85
D-M 24256	24	1½	.065	6	362.88	97½
D-M 24250	24	1½	.065	10	362.88	97½
D-M 18224	18	1½	.072	4	298.08	78
D-M 18226	18	1½	.072	6	298.08	78
D-M 18224X	18	2	.072	4	397.44	120
D-M 21224X	21	2	.072	4	463.68	140
D-M 21226X	21	2	.072	6	463.68	140
D-M 24224X	24	2	.072	4	529.92	146
D-M 24226X	24	2	.072	6	529.92	146

No. 1027 Millers Falls Hack Saw Frames

Pistol grip hack saw frames give a comfortable grip. Extensible from 8 to 12 inches.
Packed 1 in a box. Wt., 1¾ lbs.

No. **1027**, with One 10-Inch Blade...............each **$2.10**

No. 99 Millers Falls Hack Saw Frames

Black composition handle, reinforced. Adjustable for 8 to 12-in. blades; can be faced 4 ways.
Throat depth 2¾ in. Nickel-plated. Wt. 1⅛ lbs.
No. **99** with One 10-Inch Blade..................each **$.95**

No. 1100 Hack Saw Frames

Pistol Grip
Frame is sherardized. Rust-proof.
Pistol Grip handle affords firm comfortable hold

Capacity, 8–12 inches. Depth, 3⅛ inches.
Price, No. **1100**...............................each **$3.00**

BAND SAWS
Metal Cutting

Flexible Back
STANDARD LIST
Cut to length and welded. Ready for use.

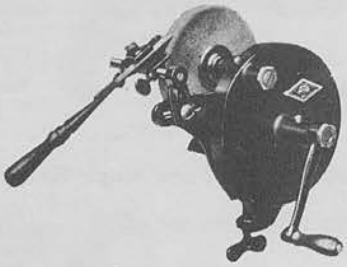
Lengths Inclusive	Widths and Thicknesses						
	3-16" .025"	1-4" .025"	3-8" .025"	1-2" .025"	5-8" .032"	3-4" .032"	1" .035"
7'6"- 8'5"	$1.04	$1.12	$1.20	$1.28	$1.62	$1.78	$2.10
8'6"- 9'5"	1.12	1.21	1.30	1.39	1.76	1.94	2.30
9'6"-10'5"	1.20	1.30	1.40	1.50	1.90	2.10	2.50
10'6"-11'5"	1.28	1.39	1.50	1.61	2.04	2.26	2.70
11'6"-12'5"	1.36	1.48	1.60	1.72	2.18	2.42	2.90
12'6"-13'5"	1.44	1.57	1.70	1.83	2.32	2.58	3.10
13'6"-14'5"	1.52	1.66	1.80	1.94	2.46	2.74	3.30
14'6"-15'5"	1.60	1.75	1.90	2.05	2.60	2.90	3.50
15'6"-16'5"	1.68	1.84	2.00	2.16	2.74	3.06	3.70
16'6"-17'5"	1.76	1.93	2.10	2.27	2.88	3.22	3.90
17'6"-18'5"	1.84	2.02	2.20	2.38	3.02	3.38	4.10
18'6"-19'5"	1.92	2.11	2.30	2.49	3.16	3.54	4.30
19'6"-20'5"	2.00	2.20	2.40	2.60	3.30	3.70	4.50
20'6"-21'5"	2.08	2.29	2.50	2.71	3.44	3.86	4.70

STANDARD LIST

Width Inches	Gauges Thickness	Feet Per Pound	Price Per Foot	Welding Each
3-16	23 or .025	75	$0.08	$0.40
1-4	23 or .025	60	.09	.40
3-8	23 or .025	35	.10	.40
1-2	23 or .025	25	.11	.40
5-8	21 or .032	16	.14	.50
3-4	21 or .032	12	.16	.50
1	20 or .035	9	.20	.50

LUTHER

MECHANICS' SPECIAL GRINDERS



A heavy duty, ball bearing grinder, made for accurate, high speed grinding. All parts extra heavy and strong, accurately machined and assembled.

One-piece dustproof gear case insures permanent alignment of all bearings; special designed ball bearing end thrust take up for wheel shaft; helical machine cut "basket" drive gear; ground steel wheel shaft.

FIVE SIZES

No.	Wheel Size	Weight Packed	List Price EACH
14	4x1x1"	9½ lbs.	6.30
15	5x1x1"	13 lbs.	7.10
16	6x1x1"	16½ lbs.	9.30
17	7x1¼x1"	26 lbs.	13.20
18	8x1¼x1"	27 lbs.	15.40

"MILWAUKEE" TOOL GRINDERS

Brand	Size Wheel	List Price EACH
4" Milwaukee	4x1x5/16"	$ 2.54
5" Milwaukee	5x1x3/8"	3.46
6" Milwaukee	6x1x3/8"	4.60
7" Milwaukee	7x1x3/8"	5.20

One piece grey iron gear case, enclosed and dustproof, flanged inwardly for oil retaining.

Bearings heavy, long and evenly divided, adding to ease of operation and life of all parts.

Spur cut gears, accurately made, wide face drive gear. Rustproofed adjustable work rest.

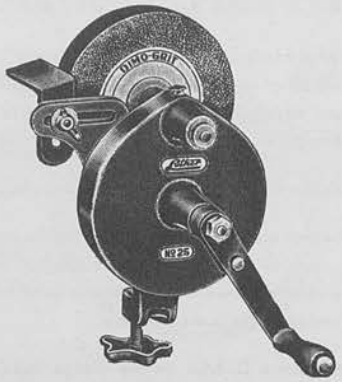
Crank fastened with key and taper socket plus a nut on the outside, making a positive slip-proof mounting.

Wheels are mounted directly on the wheel shaft on the entire line. Any one can now change wheels and have a true balanced running wheel.

Bench screw permits use anywhere; steel screw with sturdy notched iron hand grip.

Fine quality orange-red finish. Durable and attractive.

"STANDARD" TOOL GRINDER NOS. 24, 25, 26 AND 27



FINISHED IN ATTRACTIVE TWO-COLOR GLOSS ENAMEL, VERMILION AND BLACK

An easy running and dependable tool and knife grinder for everyday use in shops, homes, garages, for use by carpenters, lathers, mechanics, plumbers, in tool kits, etc., or wherever a portable tool grinder is needed. Easy to carry and clamps on anywhere. Accurately made and attractively finished in durable baked enamel.

Fast and cool cutting vitrified improved Dimo-Grit wheel, machine cut teeth on gear and wheel shaft, one-piece case keeps bearings in perfect alignment always, keyed crank with large wood grip, adjustable work rest, steel bench screw, steel wheel flange and washer, self-closing oilers. One grinder with complete equipment packed in a carton.

	Number	Wheel Size	Packed Wt.	List Price EACH
24	"Standard"	4x1x⅜" (medium)	6 lbs.	3.58
25	"Standard"	5x1x⅜" (medium)	8½ lbs.	4.40
26	"Standard"	6x1x⅜" (medium)	11¼ lbs.	5.90
27	"Standard"	7x1x⅜" (medium)	12 lbs.	6.48

Valley City Grinding Machines

No.	Wheels, Inches Size	Distance Between	Length, Inches Over All Spindle	Bearings	Spindle Diam. Inches In Bearings	Between Figs.
2	10x1	..	11½	6½	⅞	¾
4	14x1¼	..	14	8½	⅞	¾
6	6x1½	6	9½	1¾	⅝	½
7	7x ¾	7	11	2	⅝	½
8	8x1	10	16½	3	¾	⅝
10	10x ½	12	19	3½	⅞	¾
12	12x2	16	24	4	1⅛	1
14	14x2½	18	27	5	1¼	1⅛

No.	Size Pulleys, Inches On Spindle	Countershaft Drive	Countershaft T. & L.	Floor Space Base In.	SPEED, R. P. M. Countershaft	Spindle
2	2¼x2¼	8 x 2	4x2	...	595	1910
4	3 x2½	10 x 3	5x3	...	570	1364
6	1¾x1¾	7½x11½	3x1½	8x 7	500	3183
7	2 x2	8 x 2	4x2	11x 9	595	2728
8	2½x2½	8 x 2	4x2	11x 9	595	2387
10	3 x2¾	10 x 3	5x3	14x12	570	1910
12	4 x3¾	12 x 4	6x4	19x15	512	1592
14	4½x4½	12 x 4	6x4	19x15	512	1364

No. 10, with Column

Prices upon application.

No. 15 Canadian Heavy-Duty Production Drills

As a metal-working tool, this drill is competent to do real manufacturing. Will also give satisfaction on woodworking jobs.

Spindle is held against end play and vibration; running true in 2 precision ball-bearings. Pulley is carried on extra large double row ball bearings. Feed is by special cut rack and pinion, giving a smooth rolling motion.

Bench Type

Drills holes up to ½ inch; drills to center of 15¼-inch circle. The 5 speeds are: 5200, 2700, 1530, 840 and 450 r.p.m.; feed travel 4½ inches. Working surface of table 10x11 inches, of base 10x10 inches. Maximum height spindle, raised, 38 inches; least diameter spindle ⅝ inch. High grade geared chuck, furnished standard, 0 to ½-inch capacity. Maximum distance chuck nose to table 12 inches; diameter column 2¾ inches. Maximum distance chuck nose to base 17 inches.

Shipping weight, without motor, 108 pounds; shipping weight of motor 30 pounds.

No. **15** Bench Type, without Motor............each **$42.00**

Floor Type

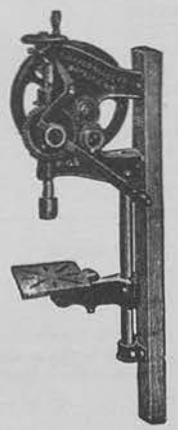
Same as bench type, but height over all is 70 inches; maximum distance table to chuck, 42 inches.

Shipping weight, without motor, 160 pounds; shipping weight of motor 30 pounds.

No. **15** Floor Type, without Motor............each **$50.00**

Straight shank adapter and mortising attachment will be furnished at extra cost.

No. 616 Canadian Ball Bearing Post Drills



Shafts and spindle are steel machined and fitted; all bearings are bored and reamed in solid metal of frame.

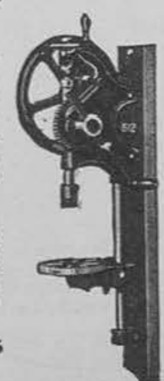
Drill has two speeds and is back geared. Two feeds, hand and automatic are provided. Automatic feed is adjustable to three speeds.

Drills to center of 16-inch circle; drills holes up to 1¼ inches; spindle diameter, 1⅛ inches; run of feed, 3¼ inches; run of table, 10 inches; diameter of pulley is 6 inches. Length over all, 38 inches; shipping weight, hand power, 115 pounds.

Furnished with chuck for ½-in. straight shank bits.

Price, No. **616**, Hand Power each **$22.25**
" " **616-A**, with Pulleys " **26.75**

No. 612 Canadian Ball Bearing Post Drills



Shafts and spindle are steel, accurately machined, and fitted. Bearings are bored and reamed in solid metal. Round slotted table is provided. Has both hand and automatic feed. The latter is adjustable to three speeds. Furnished with Buffalo Improved chuck for ½-inch straight shank bits.

Drills to center 12-inch circle; drills holes up to 1 inch; spindle diameter, 1⅛ inches; run to table, 10 inches; run of feed 2¾ inches. Length over all, 35 inches; shipping weight, 86 pounds.

No. **612**, Hand Power ....each **$14.75**

Canadian Light Forges

With Heavy 1-Piece Drawn Steel Hearth

No. 061

No. 062-H

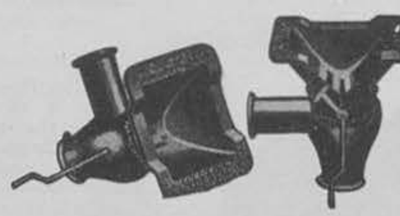
Made with a heavy 1-piece drawn steel hearth, without seams or corners to collect moisture and rust. The hearth is stronger and more durable than cast iron, and considerably lighter. An accurately stamped steel gear and fan case furnish air for the hearth. Bronze bushings are used throughout. The fan has a 5½-inch pressed steel wheel.

Mounted on 3 strong jointed legs and will stand firmly on uneven ground. Knocked down and shipped in cartons.

Suited to agricultural implement work, occasional repair work and rivet heating demanding easy portability.

Forge No.	Each	Hood	Hearth, Inches Diameter	Hearth, Inches Depth	Wt. Lbs. Packed in Carton
061	**$11.00**	Windshield	18	3	48
061-H	**12.65**	Half-Hood	18	3	52
062	**15.50**	Windshield	24	3	56
062-H	**17.75**	Half-Hood	24	3	58

No. 400 Champion Whirlwind Tuyere Irons



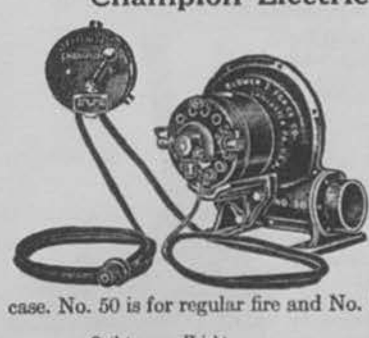
The Whirlwind Blast Anti-clinker Heavy Nest Tuyere Iron produces a circular, rotary blast. It will not blow the heat or hot air up and out of the chimney. It concentrates the blast and heat in the tuyere nest, thus making a hotter fire and heating one-third quicker.

It is supplied with a revolving pick to remove the clinkers out of the side slots.

It is 5 inches deep, 8¾ inches wide and 10½ inches long, over all, 12⅜x14¾ inches. Weight, 55 pounds.

Price, No. **400** ....each **$10.00**

Champion Electric Blowers



For all kinds of general blacksmith work. Equipped with universal motor for both direct and alternating current, either 110 or 220 volts with detached rheostat for 6 speeds, with attachment cord and plug to fit any light socket, and steel pressure fan case. No. 50 is for regular fire and No. 51 for extra heavy fire.

No.	Outlet Inches	Height Inches	R.P.M.	Weight Pounds	Price 100 V. or 220 V Each
50	3	15	800-2050	60	**40.00**
51	3	15	850-2475	70	**50.00**

Peter Wright Solid Wrought Blacksmiths' Anvils

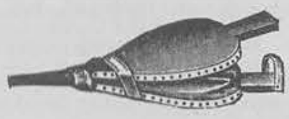
Made from two solid wrought iron forgings, which are welded together at waist of anvil under powerful steam hammers.

The face of top is heavily steeled with Sheffield steel of a special analysis, carefully tempered.

Weight Pounds	Extra Over Base per Pound	Weight Pounds	Extra Over Base per Pound
80 to 349	Base	60 to 69	Base
350 " 600	....	50 " 59	....
70 " 79	....	....	...

Moulders' Bellows

Made of sheepskin.



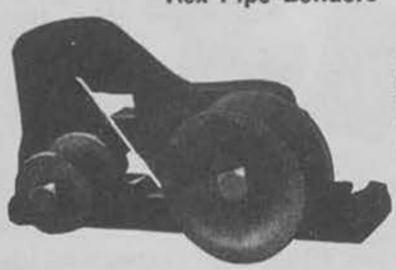
Size Inches	Price per Dozen
8	$24.00
10	32.00
12	40.00

No. 56 Suregrip Nail Pullers

Square shank with hand guard, automatic claw. Central grip of claws. Box joint at jaws. Broad foot. Size, 18 in. Packed 3 dozen in case; weight, 166 lbs.

Price, No. 56 .... per dozen **$28.00**

Rex Pipe Benders



The Rex Pipe Bender is designed so that it is practically impossible to bend pipe or rods except at true angles.

No. 3 bolts to wall or side of bench.

No.	1	2	3
For Pipe .... inches	⅛ to 1¼	1¼ to 2	⅛ to 1¼
Weight .... pounds	17	50	20
Price .... each	$6.50	12.00	6.50

Boss Adjustable Hickeys

This is a practical tool for bending pipe, conduit and rods. The snug support of the 6-inch disc prevents flattening or kinking. The natural pull of the handle fits the hickey to the pipe or conduit with a positive grip which prevents slipping.

Without adjustment it will bend ⅛ to 1-inch pipe or conduit. The disc assures a perfect job. It guides the pipe from the start and with its rolling motion shapes to the desired bend.

When used with a pipe standard the handle socket forms a swivel.

Price .... each **$6.50**

Steel Letters and Figures

Hand Cut Heavy Bevel

"STERLING" Hand Made Dies have attained an enviable standing for their superior performance and for the excellence of their whole mechanical design and construction—providing a high quality stamp at a fair price. They are made of a special analysis steel proven best by years of experience and tests. Cutting edges are clean and sharp with the exact bevel that combines the cleanest impression with the longest wear.

Size	Size of Steel Square	Size of Steel Length	Single Price	Figures, Set, 9 Pieces	Letters, Set, 27 Pieces
1-32 in.	3/16	2¼	$0.60	$5.00	$15.00
1-24 in.	3/16	2¼	.50	4.00	12.00
1-16 in.	¼	2¼	.40	3.00	9.00
1-12 in.	¼	2¼	.40	3.00	9.00
3-32 in.	¼	2¼	.40	3.00	9.00
1-10 in.	¼	2¼	.40	3.00	9.00
1-8 in.	¼	2¼	.40	3.00	9.00
5-32 in.	5/16	2½	.45	3.50	10.50
3-16 in.	5/16	2½	.45	3.50	10.50
7-32 in.	⅜	2¾	.50	4.00	12.00
1-4 in.	⅜	2¾	.50	4.00	12.00
5-16 in.	7/16	3	.60	5.00	15.00
3-8 in.	½	3	.70	6.00	18.00
7-16 in.	9/16	3¼	.75	6.50	20.00
1-2 in.	⅝	3½	.85	7.50	22.50
5-8 in.	¾	3¾	1.40	12.00	36.00
3-4 in.	¾x1	4	1.75	15.00	45.00
7-8 in.	¾x1	4	1.95	17.00	50.00
1 in.	¾x1⅛	4	2.10	18.00	54.00

Made in the Gothic style.
1-32 in. is the smallest stock size.
1 inch is the largest stock size.

No. 407 Hargrave Washer Cutters

This tool is made to cut up to 6 inches. It is used for cutting gaskets out of leather, paper, rubber, sheet lead, or thin wood, cutting both inner and outer circle at the same time and adapted to any ordinary brace.

Price, No. 407, 6-Inch with Gauge .... each **$2.25**
Price, No. 409, Knives Only .... each **.75**
Price, No. 410 Screws Only .... each **.25**

CHOPPING AXES

"The Chipper"—A good competitive grade handled axe of guaranteed quality. Cast steel bits, hickory handle.

Handled Axes		Heads Only	
		Weights	Per doz.
3 lbs.—Per dozen	List $30.90	3 lbs.	List $23.44
3¼ lbs.—Per dozen	" 30.90	3¼ lbs.	" 23.44
3½ lbs.—Per dozen	" 30.90	3½ lbs.	" 23.44
3¾ lbs.—Per dozen	" 31.96	3¾ lbs.	" 24.50
4 lbs.—Per dozen	" 31.96	4 lbs.	" 24.50

LION

Handled Axes		Heads Only	
			Per doz.
Weight	Per doz.	Weight	List
3 lbs.	List $31.30	3 lbs.	$23.96
3¼ lbs.	" 31.30	3¼ lbs.	23.96
3½ lbs.	" 31.30	3½ lbs.	23.96
3¾ lbs.	" 32.36	3¾ lbs.	25.04
4 lbs.	" $32.36	4 lbs.	25.04
4¼ lbs.	" 33.42	4¼ lbs.	26.10

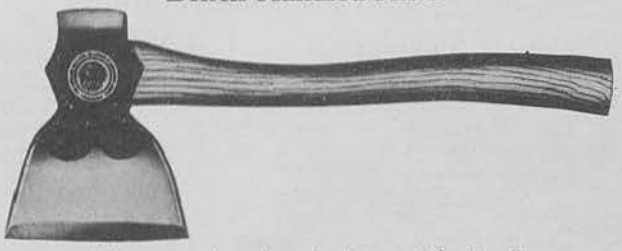
"Black Prince"—Double Bitted Axe. Weight 3½-4 pounds.

Per dozen.....**List $37.28**

Hunters' Handled Axe, Plain Bit

Painted Black					Lion Brand
Size No. 0	Weight of Head only	1¼	lbs.,	14	inch Handle
Size No. 1	" " " "	1½	"	16	" "
Size No. 2	" " " "	1¾	"	16	" "

Bench Handled Axes



"Guaranteed to give absolute satisfaction."

These Bench Axes are made from selected materials of the highest grade. The head is of crucible steel carefully tempered and ground. The handles are of the finest selected second growth hickory, perfectly balanced and finished.

Nos.	2	3	4	5	6
Blade, inches	4½	5	5½	6	6¼
Per dozen.....List	$24.00	$26.00	$28.00	$30.00	$32.00

HATCHETS

No. 7 — Claw Hatchet—"Smart's" make. Cast Steel head. Polished bit. Selected handle. Oil finished.

Per dozen—**List $21.00**

No. 6 — Lathing

No. 1 — Shingling

Lath Hatchets—Solid cast-steel, full polished, 2" bit. Selected hickory handles.

Per dozen

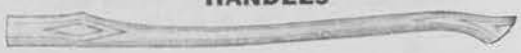
No. 6—Square Head.....**List $32.25**

SHINGLING HATCHETS

No. 1—Cast steel head, polished edge and face; 3½" cut, varnished handle.

Per dozen .....**List $20.25**

HANDLES



Men's Full Size Axe Handles—30" to 36"

AXE HANDLES	36"-34" 32"-30"	28" 21"
DONALD SMITH	$10.40	$8.00
PERFECT	8.55	7.35
PATHFINDER	7.50	5.95
PACEMAKER	6.90	5.25
PIONEER	5.40	4.75
PROVINCIAL	4.95	3.75

Pick Handle

COAL, DRIFT and POLL PICK HANDLES

	34"
DONALD SMITH	$10.40
PERFECT	8.55
PATHFINDER	7.50
PACEMAKER	6.70
PIONEER	4.70
PROVINCIAL	4.75

Weight: 24 lbs. a dozen.
Packed 1 or 2 dozen a carton.

Adze Eye Nail Hammer Handle

Machinist Hammer Handle

HAMMER HANDLES

Adze Eye Nail; Machinist; Blacksmith; Etc.

	10-11-12" 13-14-15"	16"	18"
DONALD SMITH	$3.15	$3.45	$3.60
PERFECT	2.65	3.00	3.25
PACEMAKER	2.05	2.20	2.35
PIONEER	1.30	1.35	1.50
	20"	22"	24"
DONALD SMITH	$4.00	$5.00	$6.60
PERFECT	3.75	4.00	4.30
PACEMAKER	2.70	3.00	3.30
PIONEER	1.90	2.25	2.65

Weight: 10" to 15" handles average 5 lbs. a dozen: 16" 6 lbs.; 18" 7 lbs.; 20" 10 lbs.; 22" 11 lbs., and 24" 12 lbs. a dozen, packed 1 dozen to a carton.

Oval Eye Sledge Hammer Handle

SLEDGE and MAUL HANDLES

	26" 28"	30" 32"	34" 36"
DONALD SMITH	$7.35	$8.70	$9.30
PERFECT	6.00	7.35	7.90
PATHFINDER	4.80	6.00	6.70
PIONEER	3.30	3.80	4.25
PROVINCIAL	2.40	2.60	3.30

Weight: 34"-36" handles average 18 lbs. a dozen: 30"-32" handles 15 lbs. a dozen packed 1 or 2 dozen to a carton.

CLAY PICKS

Clay Picks—Adze eye, cast steel, oil finish.

Weight, pounds	6	6½	7	8
Per dozen List	$8.80	$9.10	$9.50	$11.00

ASPHALT CUTTERS

Per dozen ..... List $24.25

CUTTING MATTOCK

Black Finish

Size, 5"x3". Weight, 5½ pounds—Per dozen..... List $13.00

PICK MATTOCKS

Black Finish

Weight 5 to 5½ pounds—Per dozen..... List $13.00

GRUB HOE

Black Finish

Weight 4 pounds—Per dozen..... List $12.50

WRECKING BARS

		4 lb.
12x½"—per dozen	List $	4.80
18x⅝"—per dozen	"	5.20
24x¾"—per dozen	"	6.00
30x¾"—per dozen	"	7.20
36x¾"—per dozen	"	9.00

CROW BARS

Chisel or Wedge Point	List
4', 4½', 5', 5½', 6', per 100 lbs.	12.50

POST HOLE

7 ft. chisel point Per 100s. List $18.00

PEAVIES

Maple Handles

ROUND OR DUCK BILL

Nos.		123	124
Length Handle, Ft.	4½	5	5½
Weight per Dozen, Lbs.	100	105	110
Per Dozen	$51.00	$52.50	$54.00

CANT HOOKS

With Malleable or Steel Clasp

Maple Handles

Nos.	179	180	181
Length Handle, Ft.	4	4½	5
Weight per Doz., Lbs.	85	90	95
Per Dozen	$39.00	$40.50	$42.00

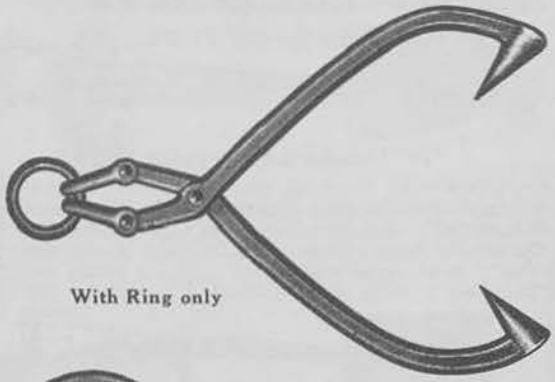
Cant Hook and Peavey Handles

ROCK MAPLE HANDLES

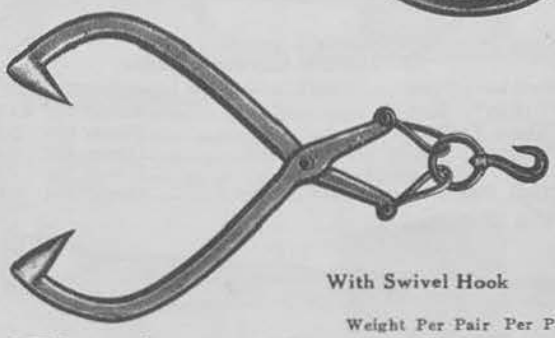
		Weight Per Doz.	Per Doz.
2⅜ in. x 4	ft.	37 lbs.	$10.00
2⅜ in. x 4½	ft.	40 lbs.	11.50
2⅜ in. x 5	ft.	43 lbs.	13.00

Skidding Tongs

Made of High Carbon, Open Hearth Octagon Steel.



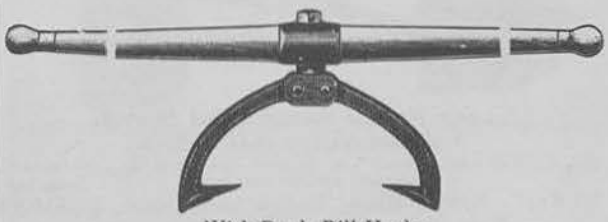
With Ring only



With Swivel Hook

		Weight Per Pair	Per Pair
No. 245-B—1	in., opens 24 in.	16 lbs.	$8.00
No. 246-B—1⅛	in., opens 30 in.	23 lbs.	8.75
No. 247-B—1¼	in., opens 32 in.	27 lbs.	11.25

Timber Carriers



With Duck Bill Hooks

	Weight Per Doz.	Per Doz.
No. 224—With 4 ft. Maple Handles	100 lbs.	$52.00
No. 225—With 4½ ft. Maple Handles	105 lbs.	53.50

Load Binder

LOAD BINDERS

Light

Weight	Each
6¼ lbs.	3.00

Binds a load of Lumber, Logs, Hay, Pipe or other large loads SECURELY in three seconds and unbinds in one. It never jams or gets loosened when in use.

This Binder is hand forged from special steel. It has a spread of 22½ inches when open and contracts to 17½ inches, taking up a slack of 5½ inches. Approximate weight 12 lbs.

SHOVELS AND SPADES

Bull Dog Brand—Standard weight. Solid shank.
Fox Brand—Medium weight. Solid shank.
Bantam Brand—Lighter weight. Solid shank.

"D" Handle Round Point Shovels

Size 2 blade-9x12¼ ins; 27 ins. straight ash handle with split "D" top.

"O-Kay". Hollow back socket.....Dozen list	$10.90
"Black Cat". Hollow back socket.....Dozen list	14.25
"Bantam". Solid shank socket.....Dozen list	16.15
"Fox". Solid shank socket.....Dozen list	16.15
"Bull Dog". Solid shank socket.....Dozen list	18.40

"D" Handle Garden Spades

Size 2 blade-7¼x12 ins.; straight grained ash handle with split "D" top.

"O-Kay". Hollow back socket.....Dozen list	$10.90
"Black Cat". Hollow back socket.....Dozen list	14.25
"Bantam". Solid shank socket.....Dozen list	16.15
"Fox". Solid shank socket.....Dozen list	16.15
"Bull Dog". Solid shank socket.....Dozen list	18.40

"D" Handle Square Point Shovels

Size 2 blade-9¾x12 ins.; 27 ins. straight ash handle with split "D" top.

"O-Kay". Hollow back socket.....Dozen list	$10.90
"Black Cat". Hollow back socket.....Dozen list	14.25
"Bantam". Solid shank socket.....Dozen list	16.15
"Fox". Solid shank socket.....Dozen list	16.15
"Bull Dog". Solid shank socket.....Dozen list	18.40

Long Handle Round Point Shovels

Wide and Narrow Pattern Blade.

Size 2. Wide blade, 9¼x12 ins. Narrow blade, 8x12 ins.; 50 ins. long, straight grained ash handle.

	Dozen List
"O-Kay". Narrow Blade. Hollow back socket.....	$10.90
Wide Blade. Hollow back socket.....	
"Black Cat". Narrow Blade. Hollow back socket.....	14.25
Wide Blade. Hollow back socket.....	
"Bantam". Wide Blade. Solid shank socket.....	16.15
"Fox". Wide Blade. Solid shank socket.....	16.15
"Bull Dog". Wide Blade. Solid shank socket.....	18.40

Long Handle Square Point Shovels

Size 2 Black; blade 9¾x12¼ ins.; 50 ins. long, straight grained ash handle.

"O-Kay". Hollow back socket.....Dozen list	$10.90
"Black Cat". Hollow back socket.....Dozen list	14.25
"Bantam". Solid shank socket.....Dozen list	16.15
"Fox". Solid shank socket.....Dozen list	16.15
"Bull Dog". Solid shank socket.....Dozen list	18.40

½ dozen in a bundle.

Black Cat Brand—Light weight hollow back socket.
O-Kay Brand—Light weight hollow back socket.

"D" Handle Sand Shovels

"Black Cat"—No. 4—Size 13x10½" blade, black. List	$15.75
"Black Cat"—No. 5—Size 14x11" blade, black "	16.50
"Black Cat"—No. 6—Size 13½x10½" blade, black "	17.25
"Moose" —No. 6—Size 14x11" blade, black "	19.50

Coal or Grain Scoop Shovels

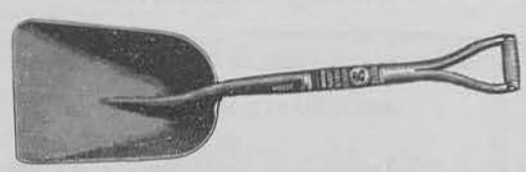
Superior grade one-piece drawn steel blade and socket; 27 ins., selected ash handle with reinforced split grip.

Size No.	2	4	6	8	10
Blade, ins.	11x15	11¼x16	12¼x17	13¾x18	14½x19
			Dozen list		
"Black Cat"	$18.00	$19.15	$21.00	$22.50	$24.00
"Moose"	20.25	21.75	23.25	24.75	26.25

Break Down Scoops

Superior grade one-piece drawn steel blade and hollow back socket; black finish; 28 ins. seasoned ash handle with steel strapped "D"

No.	4	6
Blade, ins.	11x16	11½x17
"Black Cat". Dozen list	$19.50	$21.00
"Moose". Dozen list	20.25	23.25



Superior grade one-piece steel blade and socket. Wide bowl, flat bottom, flaring sides and concave back make this ideal where coal is handled manually on a large scale; 27 ins. selected ash handle with heavy steel "D".

No.	4	6	8	10
Blade, ins.	13x16½	13½x17	14¼x18⅜	14½x19
"Special". Dozen list	$24.00	$27.00	$30.00	$33.00

MOULDERS' SHOVELS

"Bulldog" No. 2—Size 10x12" blade, socket, black List $18.40

SHOVELS AND SPADES

Bull Dog Brand—Standard weight. Solid shank.
Fox Brand—Medium weight. Solid shank.
Bantam Brand—Lighter weight. Solid shank.

Post Hole Spades

Black, one-piece blade and solid shank socket, concave blade with oval mouth, 6¼ ins. wide, in lengths as below; selected ash handle with steel capped split "D".

"Bull Dog" 14-inch .... Dozen list **$18.40**
16-inch .... Dozen list **19.15**
18-inch .... Dozen list **19.90**

Draining Spades

Black, one-piece blade and solid shank socket, concave blade 5¼ ins. wide at top tapering to 4¼ ins. wide at point, in lengths as below; selected ash handle with reinforced split "D".

"Bull Dog" 14-inch .... Dozen list **$18.40**
16-inch .... Dozen list **19.15**
18-inch .... Dozen list **19.90**

POST HOLE SPOONS

Tax Exempt.

6 Foot Handles—Black, socket, 10x8¼" .... **List $36.00**
8 Foot Handles—Black, socket, 10x8¼" .... " **43.50**
10 Foot Handles—Black, socket, 10x8¼" .... " **52.50**

FURNACE SCOOPS

No. 7. Furnace House Scoop—High carbon steel blade. Regular D handle. Per dozen **List $8.25**
No. 17. Special Furnace Scoop—D handle. Per dozen **List 10.90**

SNOW SHOVELS

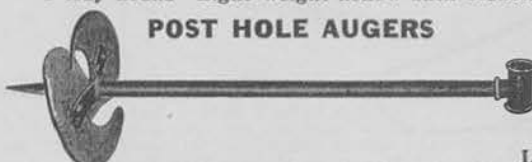
"Prince" Snow Shovel—Light snow shovel with long ash handle. High carbon steel. Per dozen **List $9.75**
Special Stable Shovel—L. handle. Per dozen **List 9.75**
"Prince"—D. handle. Per dozen **List 10.90**
Special Stable Shovel—D. handle. Per dozen **List 10.90**

O-Kay Snow Shovels Black steel. 16 gauge.

	Bottom	Top	Height	Overall
Sizes	18"	15"	14"	48"
Per dozen				**List $12.75**

Black Cat Brand—Light weight hollow back socket.
O-Kay Brand—Light weight hollow back socket.

POST HOLE AUGERS



	List
'Vaughan's' 7" Iron Tube, Malleable T Top, handle	**$32.60**
'Vaughan's' 8" Iron Tube, Malleable T Top, handle	**32.60**
'Vaughan's' 9" Iron Tube, Malleable T Top, handle	**34.24**
'Vaughan's' 10" Iron Tube, Malleable T Top, handle	**37.68**

Tax Exempt

Iwan's—Will enter hard soil, and will hold fine dry sand, does not bind in the hole; has double V cutting steel blades, tube, shank, wood handle.

Size, inches	8	9	10
Per dozen	**List $43.28**	**$47.50**	**$71.40**

Tax Exempt

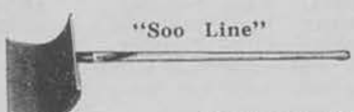
POST HOLE DIGGER

Universal Packed 3 in a bundle, approximate weight, per dozen. 200 pounds.

	5 ft.	6 ft.
Per dozen	**List $62.54**	**$69.28**
Digging Blade. Each	....	**1.80**
Scoop Blade. Each	....	**2.40**

Sidewalk Cleaners

ESC7 Sidewalk Cleaner—Solid steel blade. Long handle. Just the thing for heavy ice. 7" blade.
Per dozen .... **List $6.75**



"Soo Line" — A combined scraper and shovel. An ideal tool for rapid and easy work. High carbon steel blade.

SNOW SCRAPERS

With straight hardwood handles—

Width of blades	12"	18"	24"	30"	36"
Fitted with "D" Handles—	**14.67**	**16.00**	**17.33**	**18.67**	**20.00**
Width of blades	12"	18"	24"	30"	36"
	18.67	**20.00**	**21.33**	**22.67**	**24.00**

D Shovel or Spade Handle—

	Straight	Bent
Per dozen	**List $8.80**	**$8.80**

LONG SHOVEL HANDLES

Bent, 4½ ft., Extra ash. Per dozen .... **List $8.80**
Straight, 4 ft., chucked, extra ash. Per dozen .... " **8.80**

HARVEST TOOLS

Welland Vale Brand is the highest quality obtained through best materials and expert workmanship. Of the very best crucible steel, correctly shaped, properly tempered, and fitted with selected second growth white ash handles. **The Excelsior** brand are good serviceable tools well-made throughout, and will give satisfaction.

3-Tine Bent Handle Hay Forks

Oval, spring tempered tines, 12 ins. long, 7½ ins. spread
Handles in 3½, 4, 4½ and 5 feet lengths.
Please specify length of handle required.

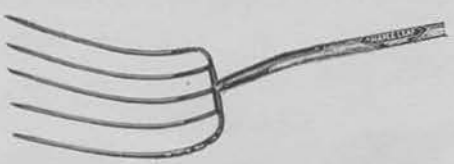
		Doz. list
312B	"Welland Vale" Plain Ferrules.....	$15.75
S312B	"Welland Vale" Strap Ferrules.....	17.25
ES312B	"Excelsior" Strap Ferrules.....	14.25

"D" Handle Wide Pattern Manure Forks

Oval, spring tempered tines, 13 ins. long, Selected Handles with Steel D. Tops.
Spread: 4-tine 9½ ins., 5-tine 10½ ins., 6-tine 10½ ins.

		Doz. list
4DW	4-tine "Welland Vale" Plain Ferrules	$19.50
S4DW	4-tine "Welland Vale" Strap Ferrules	21.00
5DW	5-tine "Welland Vale" Plain Ferrules	22.15
S5DW	5-tine "Welland Vale" Strap Ferrules	23.65
6DW	6-tine "Welland Vale" Plain Ferrules	24.40
S6DW	6-tine "Welland Vale" Strap Ferrules	25.90
ES4DW	4-tine "Excelsior" Strap Ferrules....	15.75
ES5DW	5-tine "Excelsior" Strap Ferrules....	17.25
ES6DW	6-tine "Excelsior" Strap Ferrules....	18.75

Omit "W" for Narrow Pattern "Welland Vale" Brand only.



Long Handle, Wide Pattern Manure Forks

Oval, spring tempered tines, 13 ins. long, four feet Selected Handles.
Spread: 4-tine 9½ ins., 5-tine 10½ ins., 6-tine 10½ ins.

		Doz. list
44W	4-tine "Welland Vale" Plain Ferrules	$18.75
S44W	4-tine "Welland Vale" Strap Ferrules	20.25
54W	5-tine "Welland Vale" Plain Ferrules	21.40
S54W	5-tine "Welland Vale" Strap Ferrules	22.90
64W	6-tine "Welland Vale" Plain Ferrules	23.65
S64W	6-tine "Welland Vale" Strap Ferrules	25.15
ES44W	4-tine "Excelsior" Strap Ferrules....	15.75
ES54W	5-tine "Excelsior" Strap Ferrules....	17.25
ES64W	6-tine "Excelsior" Strap Ferrules....	18.75

Omit "W" for Narrow Pattern "Welland Vale" Brand only.

4-Tine "D" and Long Handle Potato Forks

Diamond back steel tines, with flattened points; 9 ins. long, 7 ins. spread; Selected Steel "D" and 4 feet long handles.

		Doz. list
PS44	"Welland Vale" Strap Ferrules L.H.....	$19.50
PS4D	"Welland Vale" Strap Ferrules D.H.....	20.25

English Pattern 4-Tine "D" Handle Manure Forks

Four heavy square tines, 14 ins. long, 11 ins. spread, black finish, strapped and rivetted, Selected Handles with steel "D" Top.

		Doz. list
EM4	"Welland Vale" Strap Ferrules.....	$21.00

4 and 5-Tine "D" Handle Barn Forks

Oval, spring tempered tines, 16 ins. long, Selected Handles with Steel "D" Tops.
Spread: 4-tine 11½ ins., 5-tine 12 ins.

		Doz. list
S416D	"Welland Vale" Strap Ferrules.....	$27.00
S516D	"Welland Vale" Strap Ferrules.....	29.63
ES416D	"Excelsior" Strap Ferrules.....	24.00
ES516D	"Excelsior" Strap Ferrules	25.50

4-Tine Bent Handle Straw Forks

Oval, spring tempered tines, 16 ins. long, 10½ ins. spread 4½ and 5 feet Selected Handles.

		Doz. list
SR416	"Welland Vale" Strap Ferrules.....	$27.00
ESR416	"Excelsior" Strap Ferrules	20.63

4-Tine Long Handle Barley Forks

Oval, spring tempered tines, 18 ins. long, 14½ ins. spread, 4½ or 5 feet Selected Handles.

		Doz. list
S418	"Welland Vale" Strap Ferrules.....	$27.00
S418G	"Welland Vale" Strap Ferrules with Guards	28.13

6-Tine "D" Handle Chaff Forks

Oval, spring tempered tines, 18 ins. long, 12½ ins. spread
Selected Handles with Steel D. Tops.

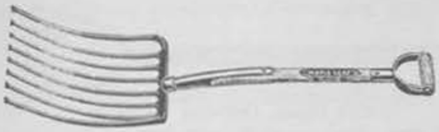
		Doz. list
S618D	"Welland Vale" Strap Ferrules.....	$37.50

7-Tine Beet Scoop Forks "D" Handle

Ball pointed, oval tines, 15 ins. spread—deep dish gives big carrying capacity; IDL Steel "D" Top Selected Handles.

		Doz. list
BSF7D	"Welland Vale" Strap Ferrules.....	$33.75

HARVEST TOOLS



8-Tine Ensilage Forks "D" Handle

Oval, spring tempered tines, 17 ins. long, 14 ins. spread IDL Steel "D" Top Selected Handles.

		Doz. list
EF8	"Welland Vale" Strap Ferrules.........	$33.75

10-Tine Vegetable Scoops "D" Handle

Deep, scoop shaped bowl, with protecting bar across end of round ¼" tines; 14 ins. long, 12 ins. wide, steel "D" Top.

		Doz. list
VS10	"Welland Vale" Plain Ferrules........	$33.00
SVS10	"Welland Vale" Strap Ferrules	34.50

10-Tine Vegetable Scoop Forks "D" Handle

Deep scoop shaped broad oval tines, 16 ins. long, 14 ins. spread, IDL Steel "D" Top.

		Doz. list
VSF10	"Welland Vale" Strap Ferrules.......	$37.88

4-Tine Spading Forks Long Handle

Angular back, diamond point heavy tines, 4 feet Selected Handles.

		Doz. list
94	"Welland Vale" Plain Ferrules	$17.25
S94	"Welland Vale" Strap Ferrules..........	18.75

4-Tine Spading Forks "D" Handle

Angular back, diamond point heavy tines, Selected Handles with Steel "D" Top.

		Doz. list
9D	"Welland Vale" 11 ins. tines Plain Ferr.	$18.00
S9D	"Welland Vale" 11 ins. tines Strap Ferr.	19.50
MS9D	"Marmion" 11 ins. tines Strap Ferrules	15.75
ES9D	"Excelsior" 10 ins. tines Strap Ferrules	13.13

10, 12 and 14-Tine Coke and Coal Forks "D" Handle Strapped

Diamond tines, specially tempered, chisel points, Selected Handles with IDL Steel "D" Top.

		Length of tines	Width at centre	Space between tines	Doz. list
K10	"Welland Vale" 10 tines,	17,	14½	1¼"	$44.25
K12	"Welland Vale" 12 tines,	17,	18	1¼"	51.75
K14	"Welland Vale" 14 tines,	17,	18	1"	59.25
CF10	"Welland Vale" 10 tines,	16,	12	⅞"	44.25
CF12	"Welland Vale" 12 tines,	16,	13½	⅞"	51.75
CF14	"Welland Vale" 14 tines,	16,	15	¾"	59.25

Measurements given are approximately correct.
Deep Dish Coal Scoop Forks also available.

4 and 5-Tine Potato Hooks

Shaped spring tempered tines, 6½ ins. long; 4-tines 6 ins. spread; 5-tines 6¾ ins. spread; 4 feet Selected Handles Plain Ferrule.

		Doz. list
4GNR	"Welland Vale" 4-tine Round Goose Neck	$15.38
4BHR	"Welland Vale" 4-tine Round Bent Head	15.38
5BHR	"Welland Vale" 5-tine Round Bent Head	19.50
4GNFO	"Welland Vale" 4-tine Flat Oval Goose Neck	17.25

4 and 5-Tine Manure Hooks

Oval, spring tempered tines 9 ins. long; 4 tines 7¾ ins. spread; 5-tines 8 ins. spread; 5 feet Selected Handles, Plain Ferrules.

		Doz. list
4M	"Welland Vale" 4-tines	$19.50
5M	"Welland Vale" 5-tines	21.00

Ladies', Garden and Field Hoes, Shank Pattern

Polished steel blades—Selected Ash Handles.

		Doz. list
L4½	"Welland Vale" 4½x3 ins. blade 4 feet handle	$11.25
F6	"Welland Vale" 6x4¼ ins. blade 4 feet handle	12.00
F7	"Welland Vale" 7x4½ ins. blade 4⅓ feet handle	12.75
F8	"Welland Vale" 8x4¾ ins. blade 4⅓ feet handle	12.75

Garden and Field Hoes, Socket Pattern

Polished Steel Blades—Selected Ash Handles

		Doz. list
FS6	"Welland Vale" 6x4¼ ins. blade 4 feet handle	$13.50
FS7	"Welland Vale" 7x4½ ins. blade 4⅓ feet Handle	14.25
FS8	"Welland Vale" 8x4¾ ins. blade 4⅓ feet Handle	14.25

Electric Welded Shank Field Hoes

Steel Blades—4-1/3 feet Selected Handles

		Doz. list
EW8	"Welland Vale" 8x4 ins. blade	$9.75
EWE8	"Excelsior" 8x4 ins. blade	8.25

HOES

Special Heavy Corn Hoes, Socket Pattern

Polished steel blades, strong neck, 26" Selected Ash Handles.

		Doz. list
CS	"Welland Vale" 8x4¼ ins. blade	$13.50

Sugar Beet Hoes, Socket Pattern

Polished steel blades—21" Selected Ash Handles

		Doz. list
SBS7	"Welland Vale" 7x3½ ins. blade........	$12.75

Beet Hoes, Shank and Socket Patterns

Polished Steel blades—4-1/3 feet Selected Ash Handles.

		Doz. list
B6	"Welland Vale" 6x2⅞ ins. blade Shank..	$12.75
B7	"Welland Vale" 7x3⅛ ins. blade Shank..	12.75
BS6	"Welland Vale" 6x2⅞ ins. blade Socket..	14.25
BS7	"Welland Vale" 7x3⅛ ins. blade Socket..	14.25

Narrow Turnip Hoes, Shank and Socket Patterns

Polished steel blades—5 feet Selected Ash Handles

		Doz. list
T8N	"Welland Vale" 8x2½ ins. blade Shank	$13.50
T9N	"Welland Vale" 9x2½ ins. blade Shank	14.63
T10N	"Welland Vale" 10x2½ ins. blade Shank	15.75
TS9N	"Welland Vale" 9x2½ ins. blade Socket	16.13

Carrot Hoes, Shank Pattern

Polished steel blades—4-1/3 feet Selected Ash Handles.

		Doz. list
C4	"Welland Vale" 4x5¼ ins. blade........	$12.75

Tobacco Hoes, Shank Pattern

Polished steel blades, square sides, 4-1/3 feet Selected Ash Handles.

		Doz. list
TH8	"Welland Vale" 8x2½ ins. blade........	$13.50

Mortar Hoes, Shank Pattern

Polished steel blades, 5½ feet Selected Ash Handles.

		Doz. list
M10	"Welland Vale" 10x5½ ins. blade.....	$19.13
1M10	"Welland Vale" 10x5½ ins. blade Improved with two 1⅝ ins. holes...	20.25

Dutch Hoes, Oshawa Pattern

Polished Steel blades, carefully welded to strong supports, Selected Ash Handles.

		Doz. list
D04	"Welland Vale" 4x1⅝ ins. blade........	$14.63
D07	"Welland Vale" 7x1⅝ ins. blade........	15.38

Dutch Hoes, Welland Pattern

Polished steel blades, one piece, Selected Ash Handles

		Doz. list
D7	"Welland Vale" 7x3½ ins. blade.........	$14.63

Triangular Weeding Hoes, Socket Pattern

Polished steel blades, Selected Ash Handles.

		Doz. list
TWS8	"Welland Vale" 8x4½ ins. blade......	$14.25

Weeding Hoes

Polished steel blades, carefully welded to 4-teeth steel rake, Selected Ash Handles.

		Doz. list
4W	"Welland Vale" 4-teeth	$13.50
6W	"Welland Vale" 6-teeth	15.00

3 and 5-Tine Adjustable Cultivators

Diamond shaped, flat pointed tines, individually adjustable or removable, 4 feet Selected Handles.

		Doz. list
3AGC	"Welland Vale" 3-tines...............	$11.25
5AGC	"Welland Vale" 5-tines...............	15.75

Dandelion Weeders

Offset polished steel blades—Selected Ash Handles.

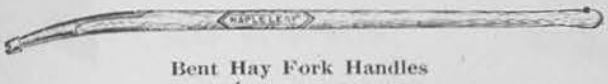
		Doz. list
DW	"Welland Vale" 6x1 ins. blade...........	$7.88

HARVEST TOOL HANDLES

Made of selected, thoroughly seasoned ash; accurately turned and shaped; smooth finish; all fork handles have square hole.

Bent Hay Fork Handles
Chucked and Bored.

Length, feet	4	4½	5	5½
No. 1 Grade. Dozen list	$4.95	$4.35	$5.20	$6.10



Bent Hay Fork Handles
Strapped and Capped.

Length, feet	4	4½	5
No. 1 Grade. Dozen list	$ 7.00	$7.35	$8.25
No. X "Welland Vale". Dozen list	7.95	8.65	9.55

Short Manure Fork Handles
With "D"; 34 ins. long; steel D top.

No. 1 Grade, chucked and bored.....Dozen list $ 6.25
No. 1 Grade, strapped and capped....Dozen list 9.00
No. "X" Grade, "Maple Leaf".....Dozen list 10.50

Long Spading Fork Handles
4 Ft. Straight Handle.

No. 1 Grade, chucked and bored.....Dozen list $5.10

Long Bent Manure Fork Handles

Length, feet	4	4½
No. 1 Grade, chucked and bored. Doz. list	$4.00	$4.35
No. 1 Grade, strapped and capped. Doz. list	7.00	7.35

Short Ensilage Fork Handles
Complete with "D" top; 34½ ins. over all; steel "D" top, with wood grip.

"XX" Grade, chucked and bored.....Dozen list $10.00
"XX" Grade, strapped and capped...Dozen list 13.45

Short Coke Fork Handles
Complete with "D" top; 31 ins. long over all; steel "D" top with wood grip.

"XX" Grade, strapped and capped....Dozen list $18.00

Short Spading Fork Handles
Complete with "D" top; 34 ins. long over all; steel "D" top, with wood grip.

No. 1 Grade, chucked and bored.....Dozen list $ 6.55
No. 1 Grade, strapped and capped....Dozen list 10.00
"X" Grade, strapped and capped.....Dozen list 11.10

Garden Rake Handles

No. 1 Grade—5 ft.:—
Chucked and Bored.....Dozen list $3.60

Field and Garden Hoe Handles
Chucked and Bored.

No. 1 Grade 4 ft.....Dozen list $2.55
No. 1 Grade 4½ ft.....Dozen list 2.95

Turnip Hoe Handles
5 Ft. Chucked and Bored.

"X" Grade .....Dozen list $5.05

Mortar Hoe Handles
5½ Ft. Chucked and Bored.

"X" Grade .....Dozen list $6.55

Post Hole Spoon Handles
Chucked Only; 1¾ to 2 Ins. Diameter.

XX Grade. 6-ft.....Dozen list $15.00
8-ft.....Dozen list 22.50

OUR POLICIES

Our policies are in no manner complex, being defined entirely in the aim to give a high class distributing service for supplies of recognized quality. Beyond this is the desire to be known as a house of reliable dealing.

With these principles as basic your patronage is earnestly solicited.

Garden Sets

No. 3GS Adult's 3-Piece Set
Shovel, Rake and Hoe.

High quality steel blades; selected ash handles; sturdily made; finely finished throughout.

Spade—Concave blade, 5 ins. wide, 8 ins. long; half polished; solid shank; gold bronzed plain ferrule and steel "D" handle with wood grip; selected handle 25 ins. long, 1¼ ins. diameter.

Hoe—4½ ins. blade, solid shank; gold bronzed neck and plain ferrule; shaped handle 48 ins. long, ⅞ ins. diameter.

Rake—6-Tine, stamped steel; width of head, 8 ins.; length of tines, 2½ ins.; black japanned head and plain ferrule; shaped handle, 48 ins. long, ⅞ ins. diameter.

No. 3GS "Welland Vale". Doz. sets list.......$26.25
No. 3GS "Maple Leaf". Doz. sets list......... 26.25
Each se: in a bundle.

Garden Fork

All steel head 5½ ins. riveted to short steel shank; varnished hardwood handle length over all, 10 ins.

No. F383. Dozen list $6.75

Garden Trowel

One piece blade and socket of 18-gauge sheet steel; 5½ ins. plain hardwood handle; length over all, 13½ ins.

No. FT. Dozen list $6.75

Weed Cutters

Thistle Spuds or Weed Cutters

Tapered steel blades, 6 ins. long, 1¾ ins. wide, 4 feet Ash Handles.

		Doz. list
TC	"Welland Vale"	$7.88

Turf Edgers, Long or "D" Handles

Polished steel blades, crescent shape, 9 ins. wide, 4¾ ins. deep
Selected Ash Handles.

		Doz. list
E4	"Welland Vale" 4 feet Long Handle Straight Shank	$13.50
ED	"Welland Vale" "D" Handle, Straight Shank	14.25
EDB	"Welland Vale" "D" Handle, Bent Shank	14.25
EDE	"Excelsior" "D" Handle, Straight Shank	11.25

Sod Lifters "D" Handles

One piece polished steel blades, heavy bent shank, 18 ins. long; blade 9 ins. wide, 4¾ ins. deep; 30 ins. Selected Handles.

		Doz. list
SDSL	"Welland Vale" Strap Ferrules.........	$31.50

Rakes

Weldless Steel Rakes

One piece steel head and braced shank, 2½ ins. straight teeth; Selected Ash Handles.

		doz. list
W12	"Welland Vale" 5 feet handles.........	$11.25
W14	"Welland Vale" 5 feet handles.........	12.00
W16	"Welland Vale" 5½ feet handles.......	12.75

Concave Steel Garden Rakes, Brace Head

One piece steel head and braced shank, 2¾ ins. concaved teeth; Selected Ash Handles.

		doz. list
BH12	"Welland Vale" 5 feet handles........	$15.00
BH14	"Welland Vale" 5 feet handles........	16.13
BH16	"Welland Vale" 5½ feet handles......	17.63

Concave Steel Garden Rakes, Solid Bow

One piece steel head and bow, 2¾ ins. concaved teeth; Selected Ash Handles.

		doz. list
B12	"Welland Vale" 5 feet handles..........	$15.00
B14	"Welland Vale" 5 feet handles..........	16.13
B16	"Welland Vale" 5½ feet handles........	17.63

Straight Steel Garden Rakes

One piece steel head and shank, 2½ ins. straight teeth; Selected Ash Handles.

		doz. list
12	"Welland Vale" 5 feet handles...........	$12.75
14	"Welland Vale" 5 feet handles...........	14.25
16	"Welland Vale" 5½ feet handles.........	15.75

Light Steel Garden Rake

Light steel head; single shank; 2½ ins. straight teeth; steel ferrule; 5 ft. ash handle.

No.	EL10	EL12	EL14
Number of Teeth	10	12	14
"Excelsior". Doz. list	$6.38	$6.75	$7.13

ASPHALT RAKES

No. A-14, Long, Square Steel Shank

14 tooth extra heavy solid steel head; 18 ins. shank; excellent for heavy work—asphalt tar, crushed stone, etc.; long strapped ferrule; 4½ ft. heavy handle of selected ash.

No. A-14. Dozen list.....**$33.00**

LAWN RAKES

No. FBR 22 Brume-Rake

A flexible rake with 22 14-in. flexible spring steel teeth; light and strong; used like a broom for sweeping lawns, paths, etc.; black enamel finish, 19 in. spread; 4 ft. hardwood handle.

No. FBR22. Dozen list.....**$13.50**

Dandelion Lawn Rakes

Stamped steel concave blade 17 ins. wide, 4½ ins. deep; 26 "V" teeth; riveted, malleable iron forked shank; plain steel ferrule; all japanned finish; 5½ ft. ash handle.

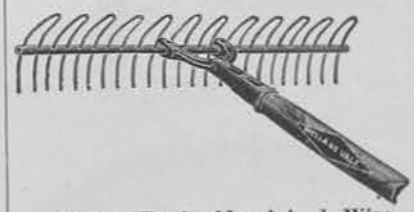
No. DLR. Dozen list **$15.00**

LAWN RAKES

Lawncomb

24 flexible flat steel teeth; light weight; easy to use; sweeps the lawn clean; equally convenient for gravel paths, walks, etc.; finished in Olive Green Enamel; complete with long handle.

No.	Width	Length	Handle	Doz. List
LC-18	18"	7¼"	4⅓'	$16.50
LC-24	24"	9"	5'	21.00

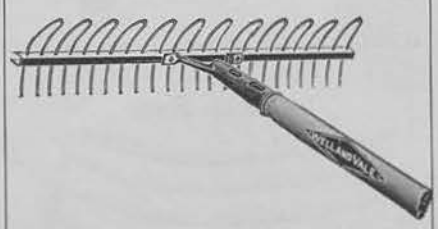


Riveted Head, Aluminized Wire

Reversible.

Tubular steel head inserted with 9-gauge spring steel wire teeth; malleable iron socket brace fastened to head with rivets; 6 ft. seasoned ash handle.

No.	WL-20-R	WL-24-R
Teeth	20	24
Width, ins.	17½	21
Dozen list	$12.38	$13.50



Aluminized Wire, Bolted Head

Reversible.

No. 9 spring steel wire teeth in tubular steel head; malleable iron socket brace securely bolted over head of rake; 6 ft. seasoned hardwood handle.

No.	WL-20-B	WL-24-B	WL-36-B
Teeth	20	24	36
Width, ins.	17½	21	31½
Dozen list	$13.50	$16.50	$24.00

HAY KNIVES

Heaths Hay Knives

Three 3 ins. steel sections riveted to flat steel blade; 1-piece steel handle brace and step; 36 ins. ash handle.

Heaths. Dozen list **$24.00**
Extra Sections. Dozen list... **3.00**

Lightning Hay Knives

High grade, heavy curved steel blade and shank; serrated cutting edge. 20 ins. long; plain hardwood handles; length over all, 36 ins.

No. LHK. "Lightning". Dz. list **$24.00**

FORK AND HOE FERRULES

Polished drawn steel; 1-piece electric welded.

Plain Ferrule

Strapped

	Per Dozen List Plain	Strapped
Hay Fork Ferrules	$1.50	$3.75
Manure Fork Ferrules	1.50	3.75
Spading Fork Ferr...	1.50	3.75
Garden Hoe Ferrules	1.35	

FORK CAPS

Seamless, polished drawn steel.

Hay Fork Caps	Dozen list	$ .75
Manure Fork Caps	Dozen list	.85
Ensilage Fork Caps	Dozen list	.90

HANDLE "D" TOPS

For Fork, Shovel and Spade Handles

Pressed Steel. Plain Hardwood Grip. "I-D-L". Improved, heavy; socket 2 ins. long, 1⅛ ins. inside diam. Doz. list **4.50**

GRASS SCYTHES

Double Beaded Grass Scythes

Made of the highest quality steel accurately shaped and carefully sharpened; heavy beaded web. A Double Beaded scythe is a perfect scythe.

DBN Narrow Heel

DBN 30 to 34-inch. Dozen list..**$21.00**

DBW Wide Heel

DBW 30 to 34-inch. Dozen list **21.00**

Cast Steel Grass Scythes

Refined cast steel blade carefully tempered and sharpened; beaded web.

CSW Cast Steel Wide Heel:—

30 to 32-inch. Dozen list...**$19.50**

30 to 34-inch. Dozen list.... **19.50**

Clipper Grass Scythes

First quality steel blade, carefully tempered and sharpened; beaded web.

CLW Clipper Wide Heel.

30 to 32-inch. Dozen list.....**$21.00**

CLN Clipper Narrow Heel.

30 to 32-inch. Dozen list..... **21.00**

BUSH SCYTHES

18 to 22-Inch Assorted Lengths.

Finest quality heavy steel blade; 3 ins. wide at heel.

BN "Cast Steel". Dozen list **$21.00**

FORK TINES

Hay Fork Tines

12 ins. long; fine steel; carefully tempered.

3-Tine, Regular Grade. Doz. list **$8.25**

Manure Fork Tines

Wide pattern; 13 ins. tines; fine tempered steel.

	Regular	Star
4-Tine. Dozen list....	**$11.25**	**$ 9.40**
5-Tine. Dozen list....	**14.25**	**12.40**
6-Tine. Dozen list....	**17.25**	**14.25**

Barn Fork Tines

16 ins. tines; fine tempered steel.

	Regular
4-Tine. Dozen list.....	**$16.50**
5-Tine. Dozen list.....	**19.15**

REAPING OR GRASS HOOKS

Cast Steel

Fine quality cast steel blade, 1¼ ins. wide expertly tempered and sharpened. Shank extends through handle and is riveted at end; polished steel ferrule; 5½ ins. natural finish hardwood handle.

Nos.	GH2	GH3	GH4
Length cut, ins...	11½	12¼	13½
Dozen list	**$6.00**	**$6.30**	**$6.60**

"Little Giant" Adjustable

Extra quality steel blade adjustable to three different angles; drop forged steel shank passes through handle and is riveted at end; polished steel ferrule; black enameled wood handle; blade 2 ins. wide at heel, 11 ins. cut.

No. LGH "Little Giant". Dz. list **$9.00**

Barden Patent

Cast steel blade, bronze finish back; bead and shank; hexagon shank, riveted; corrugated wooden handle, black enameled; 12 ins. cut.

BGH. Barden Patent. Dozen list **$9.00**

FORK TINES

Chaff Fork Tines

18 ins. oval tines; 12¼ ins. spread at points; made of fine steel carefully spring tempered and polished.

6-Tine Regular. Dozen list....**$26.25**

Ensilage Fork Tines

16 ins. oval tines; 13½ ins. spread; fine steel; carefully spring tempered and polished.

8-Tine Regular. Dozen list....**$24.75**

SCYTHE SNATHS

Selected ash; steam bent; round tapered body; malleable iron fittings; 5 ins. ash nib handles with malleable iron ferrules and loops; 60 ins. over all.

No. 00 Patent Loop, Swing Socket

Selected ash; with wrench; permits scythe to be set at any angle without bending the shank (factory No. 352).

No. 00. Dozen list.....**$26.25**

No. 1 Ring and Wedge

Selected ash; 2-hole "Z" socket; with wrench (factory No. 354).

No. 1. Ring and Wedge. Dz. list **$24.00**

No. 1 Patent Loop and Solid Bolt

No. 1 quality; large handle; 4-hole socket, with wrench (factory No. 353).

No. 1. Patent Loop and Solid Bolt. Dozen list **$25.50**

No. 350 Double Ring Bush Snath

First-quality; 2-ring; 3-hole plate; stationary socket; with wedge.

No. 350. Dozen list.....**$28.50**

SNATH PARTS

Wedge. Drive Ring. Loop Bolt

No. 235 Small Wedge. Malleable iron for drive ring snaths. Doz. list.....**$ .80**

No. 222 Loop Bolts. Malleable iron; one piece bolt and loop; threaded bolt with nut. Dozen list **3.20**

No. 103 Drive Ring. Malleable iron; for ring wedge snaths. Dozen list **4.20**

LAWN MOWERS

The "Evencut"

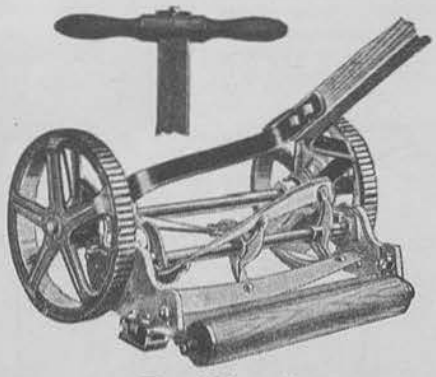
8 In. Wheels; 3 or 4-Blade; Parallel Bearing.

Open style drive wheels with wide well ribbed tread. 5½ ins. cylinder with crucible steel blades hardened and tempered. Four set screw knife adjustment assures fine positive alignment; self-sharpening; cuts ½ to 2½ ins. Painting—Gold and Green.

"Evencut"

	Each List
3-Blade, 12-Inch	$ 7.55
4-Blade, 14-inch	7.95

Each in a box.
Handles separate.



The "Victor"

4 Blade; Parallel Bearing Mower.

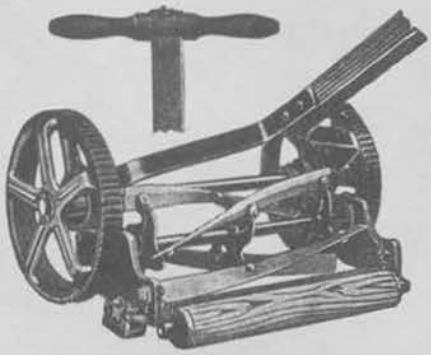
A 9-inch Open Style Drive Wheel with tread 1 in. wide that will not mark the lawn. The cylinder is 5½ ins. in diameter—has 3 blades, made of crucible steel, hardened and tempered. The journals are enclosed in dust-proof housings. The front tie rod forms an axle for the wheels which are held on by cotter pins, preventing wobbly drive wheels and eliminating broken side plates.

Simple Adjustments—Accessible Oil Holes.
Self Sharpening.
Painting—Aluminum and Green.

The "Victor" 100 — 4-Blade.

	Each List
14-Inch	$ 8.95
16-Inch	9.35

Each in a box.
Handles separate.



The "Mercury"

4 Blades; Ball-Bearing Lawn Mower.

Here is a mower built up to a high standard on a quantity production basis which may be purchased with confidence. Although moderately priced, it will give long, satisfactory service. The front tie rod forms an axle for drive wheels which are held by cotter pins, preventing wobbly wheels and broken side plates. Simple adjustments of bearings and knife bar.

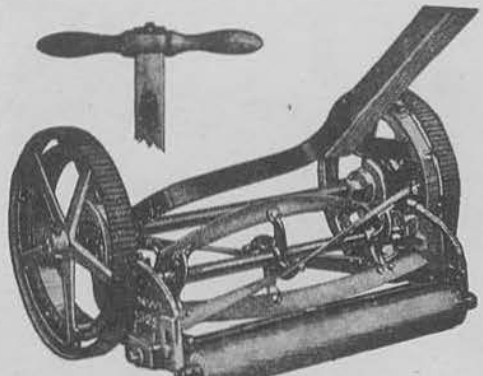
Specifications

Drive Wheels—9 ins.
Gears—Direct drive.
Pawls—Heavy special steel.
Cylinder—5½ ins. diameter, 4 or 5 blade.
Adjustment of bearings by set screw on shaft.

The "Mercury" 4-Blade.

	Each List
14-Inch	$ 9.90
16-Inch	$10.30

Each in a box.
Handles separate.



The "Woodyatt"

10½-In. Drive Wheels; Parallel Bearing.

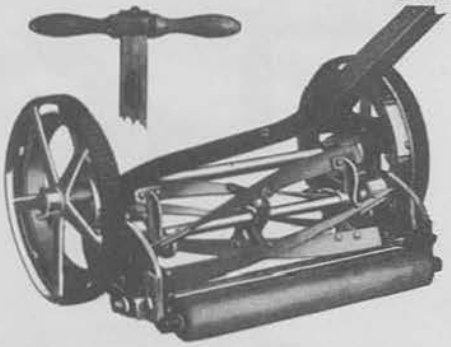
A general service, plain bearing mower long known for dependability—needs no introduction. Direct drive gears; specially treated, heavy steelflat pawls; 5½ ins. cylinder with blades of best blade steel; 2¼ ins. maple roller; lower knife bar blade adjustable by set screws at each end; has grass catcher attachments.

The "Woodyatt" 4-Blade

	Each List
14-inch	$12.85
16-Inch	13.30
18-Inch	13.90

Each in a box.
Handles separate.

LAWN MOWERS



The "PERFECTION"

Note the double riveted wing to which the Cylinder Blades are fastened. They support the blade close to the end, making a rigid sturdy proposition.

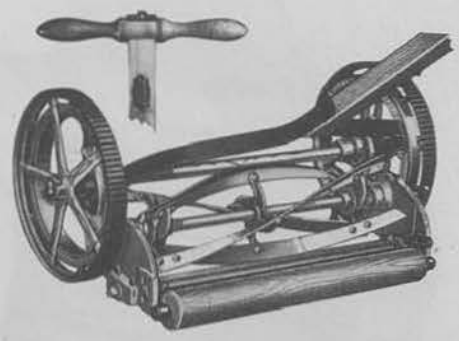
Tapered Roller Bearings on each end of Cylinder Shaft insures easy, silent running.

The bearings are enclosed to prevent dust accumulation, and the cups are filled with a light grease which furnishes lubrication for practically an entire season of ordinary use

"Perfection" 5-Blade.

	Each List
16-Inch	$17.50
18-Inch	18.00

Each in a box.
Handles separate



The "EMPRESS"

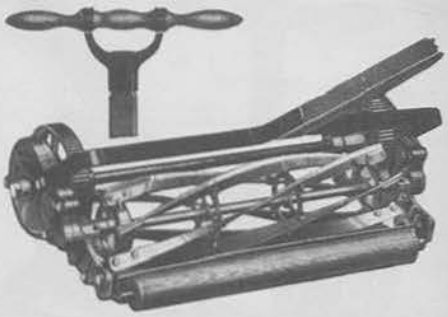
Two Reel or Cylinder Blades are on the Cutter Bar Blade at all times allowing the grass to be cut short. The Cylinder is easily adjusted and leaves our factory in perfect alignment.

We confidently believe that a comparison will satisfy anyone of the superiority of this machine in design, finish, strength and ease of operation over any other Ball-Bearing Mower now made, in the same price class.

"The Empress" 4-Blade.

	Each List
14-Inch	$13.90
16-Inch	14.30
18-Inch	14.90

Each in a box.
Handles separate.



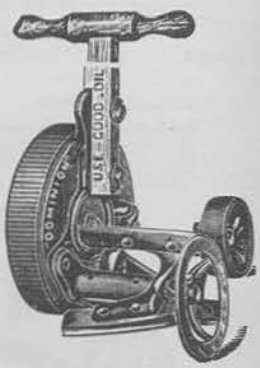
The "ONTARIO"

For Bowling Greens, Putting Greens and Tennis Courts. Compound Triple Gear, Seven-Blade Cylinder, seven and one-half inch Drive Wheel.

The Lower Knife is made of lipped Blade Steel. The Cast Knife Back is heavily ribbed to insure rigid alignment. The end Cylinder Wings are solid.

Size, inches	16	18	20
Each.....List	$37.55	$39.60	$41.65

Dominion Lawn Edger and Trimmer

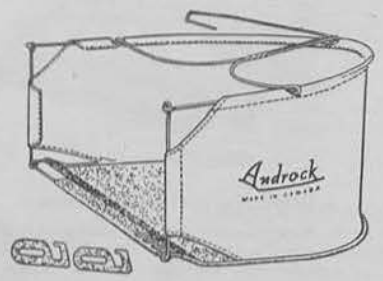


Gives the lawn that desired "well-kept" appearance; cuts grass growing close to sidewalks, trees, etc.; combines cutting quality with strength; 7 ins. solid drive wheel; 2 blade cylinder; gear is enclosed and fastened on end of shaft; knife back to cylinder adjustment; steel plate—heavy hub for wheel.

Complete with substantial handle.

"Dominion". Each list..... $8.25

GRASS CATCHERS



"Androck"

Heavy galvanized sheet steel bottom with front flange; heavy 8-oz. white duck securely fastened, heavy 8-oz. white duck sides; superior construction throughout.

No.	For Mowers	Bottom	Doz. List
881.	12" to 16"	17" x 19"	$15.60
882.	12" to 16"	17" x 19"	17.70
982.	16" to 20"	19" x 23"	20.80

No. 881—Without emptying handle.
Nos. 882, 982—With emptying handle.

GRASS CATCHER BRACKETS

	Doz. Pairs List
For No. 16-G Catcher	$2.40
For No. 18-G Catcher	2.40

Ideal POWER MOWERS

Victor "Thirty"

VICTOR "30"
Width Cut—30 inches.
Power—2 H.P.
Speed—1 to 4 M.P.H.
Capacity—4 to 6 acres per day.
Net Weight—368 lbs.
Shipping Weight—428 lbs.

VICTOR "22"
Width Cut—22 inches.
Power—1 H.P.
Speed—1 to 3 M.P.H.
Capacity—1½ to 3½ acres day.
Net Weight—320 lbs.
Shipping Weight—380 lbs.

Both 22" and 30" Victor can be furnished with air wheels (as shown) or with standardized corrugated iron wheels.

With Trailer Units

With two 19" trailer units the Victor "Thirty" has a total cutting width of 64". Due to unique cross hitch the trailer units follow and keep in exact line with front reel. Simplifies operation. Units can be turned over for transport.

THE IDEAL VICTOR model is the most modern development of the lighter weight, wheel type mower. Built to give lasting, economical service, yet embodying all the features demanded where nimbleness and easy operation are the paramount considerations.

The Victor is built in two sizes: 30" cut equipped with 2 H.P. engine, and 22" cut with 1 H.P. engine.

The "Thirty" has ample capacity for large areas, and at the same time is very easily handled around trees, flower beds, shrubbery, and on steep grades. The "Twenty-two" is very popular in cemetery work and for use on moderate sized lawns and in any work where there is a considerable amount of trimming in narrow places.

Controls on the two Victors are the same. Gas and clutch control on mower handle. Automobile type differential. Separate clutches for drive wheels and reel. Twin disc clutches — no springs. Machine cut helical gears in oil tight case.

Ample power for the heaviest cutting and for grades of from 25% to 35%.

Special rotary type weed cutter available on both sizes. Also special sharpening device utilizing mower's own power.

Roller Type

Master "30"

MASTER "30"
Width Cut—30 inches.
Power—3 H.P.
Speed—1 to 6 M.P.H.
Capacity—4 to 6 acres per day.
Net Weight—595 lbs.
Shipping Weight—675 lbs.

MASTER "25"
Width Cut—25 inches.
Power—2 H.P.
Speed—1 to 5 M.P.H.
Capacity—2 to 4 acres per day.
Net Weight—525 lbs.
Shipping Weight—595 lbs.

with Trailer Units

Cutting capacity of the Master "Thirty" can be doubled where used with our special trailer units. Well adapted to extra large grass areas. Units can be lifted for transporting.

Total Width Cut 64"

THE IDEAL MASTER is the *first choice* of thousands of users—it has the power and durability for continuous heavy duty service—is built for hard work—and over a period of years has established a record of economical service that has never been approached.

The Master is built in two sizes: 30" cut equipped with 3 H.P. engine, and 25" cut with 2 H.P. engine. Plenty of surplus power for the heaviest cutting and for climbing 20% to 35% grades.

Easy to operate with the four piece roller and swivel caster which takes but little effort to turn. Long, adjustable rubber grip handles make it easy to follow and guide.

Slight turn of handle grip operates throttle. Clutch lever mounted conveniently on handle brace rod. Lever for lifting cutting unit located on left handle — just a slight pressure will lift unit for making quick turns.

THE *Ideal* SUBURBAN

THE IDEAL SUBURBAN is a small power mower of simple design and durable construction for use on lawns of moderate size.

Power is supplied by a small, high speed, thoroughly reliable engine which is mounted above the drive roller. Power is applied through a disc clutch by chain drive to roller. Cutting unit attached to frame — ample flexibility for uneven places in lawn.

Just right for lawns that are not large enough to warrant the purchase of a large mower, yet where hand mowing becomes a real job. Uses standard hand mower unit and is sold either with or without unit as desired.

The *Ideal* Power Triplex

Senior 84" Cut
Junior 70" Cut

TWO SIZES

Steel Wheels or Pneumatic Tires

THE Ideal Triplex is a big capacity tractor type mower built in two sizes: the Junior Triplex with 70" cut and the Senior Triplex with 84" cut. For park systems, college grounds, large cemeteries, polo fields, and large country estates the Triplex has a number of important, exclusive advantages.

Grass is always cut ahead of tractor wheels — power steered — can be operated in close quarters and can get in and out of tight corners. Convenient lever to lift units for making short turns or for transporting.

Steel wheels standard — special air wheel equipment at slight extra cost.

IDEAL *Caretaker*

POWER UNIT

There are no idle months for this practical lawn care equipment. It is an investment that pays for itself quickly because of its year around utility.

This amazingly efficient combination is not merely a power mower with attachments worked out as an afterthought. Instead it is an all-purpose power unit with carefully planned and painstakingly developed interchangeable assemblies that will provide dependable service throughout the entire year.

mows lawns, and greens
rolls turf,
cuts weeds,
spikes lawns
sprays trees,
sweeps snow and leaves,

SPECIFICATIONS

POWER—Standard model, 2 H.P. Briggs & Stratton 4 cycle engine. Speed range, 1800 to 2600 R.P.M. Bore, 2¾"; stroke, 2¾". Fuel tank capacity, 1 gallon.

POWER—Heavy Duty Model, 3 H.P. Briggs & Stratton 4 cycle engine. Speed range, 1800 to 2500 R.P.M. Bore, 2¾"; stroke, 3¼". Fuel tank capacity, 5 quarts.

WIDTH CUT—32 inches.

SPEED—1 to 5 miles per hour.

CUTTING CAPACITY—4 to 6 acres per day. With riding trailer, 4 to 8 acres per day.

CLUTCHES—Twin Disc.

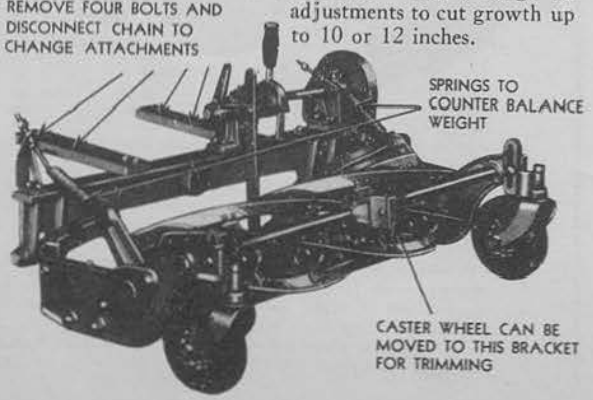
REEL—8 inch diameter, 6 blades, high carbon steel.

TIRES—Drive wheels, 15 x 4.50 pneumatic; rear caster, 8 x 2.50 pneumatic.

NET WEIGHT—Standard Model, 455 lbs.; Heavy Duty Model, 495 lbs.

POWER MOWER

Cuts 32 inches. Handles with exceptional ease. With its big 8-inch, six-blade, power driven reel it handles the toughest kind of mowing. It meets a greater variety of grass cutting requirements than any power mower ever built — has a range of adjustments to cut growth up to 10 or 12 inches.



WATER BALLAST ROLLER

A two section roller that can be used with the tractor only as illustrated. Where it is desirable to mow and roll at the same time it can be attached and used in connection with the regular mowing unit.

Weight, 131 pounds empty, 370 pounds full.

POWER SPRAYER

The Ideal-Hardie Power Sprayer meets every demand for a light duty general purpose sprayer for spraying shade trees, fruit trees, shrubbery, rose bushes, flower gardens, and vineyards, and treating golf greens. Can also be used to spray cold water paint and whitewash.

Furnished complete with 25 feet of high pressure hose and adjustable spray gun.

SICKLE BAR MOWER

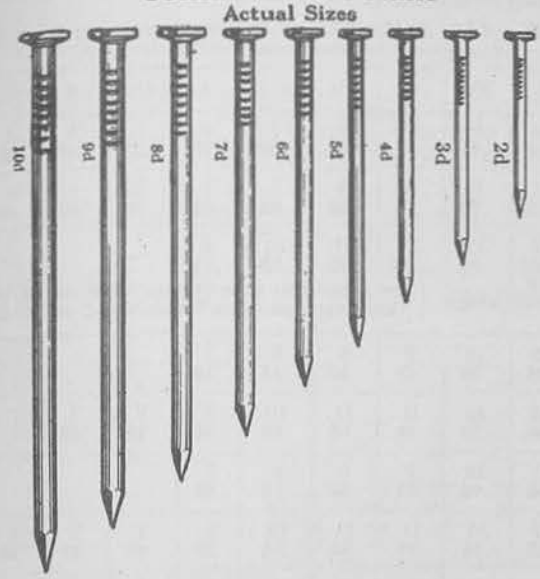
Another handy and very useful tool that is easy and quickly attached to the "Caretaker" tractor. Cutting width, 40 inches. Substantially built and operates with the same controls as regular cutting unit. Just the machine to care for the areas that are not maintained as a lawn, but where it is desirable to frequently cut the long grass, weeds, etc.

POWER SPIKER

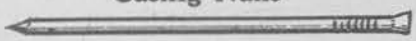
Spiking putting greens and lawns is a hard job to do by hand. Spikers with special hitch to use with the "Caretaker" tractor are now available. Quotation on these special spikers can be secured through any Ideal distributor.

Common Wire Nails

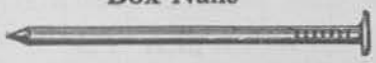
Actual Sizes



Casing Nails

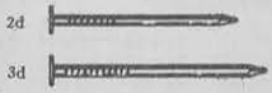


Box Nails



Wire Finishing Nails

Blued Lath Nails



Illustrations Actual Size

Wire Barbed Roofing Nails

Large Head

Wire Spikes

Flat Head, Diamond Point

SASH PIN

Lgth. In.	Ga. No.	No. to Lb.	Advance Over Base	Lgth. In.	Ga. No.	No. to Lb.	Advance Over Base
5/8	8	290	**$2.75**	1 1/8	8	165	**$2.00**
3/4	8	250	**2.50**	1 1/4	8	150	**1.75**
7/8	8	210	**2.25**	1 3/8	8	130	**1.75**
1	8	190	**2.00**	1 1/2	8	120	**1.50**

Wire Fence Staples

Bright or galvanized. Made of No. 9 wire. In 100-lb. kegs.

Lgth. Ins. ...	3/4	7/8	1	1 1/8	1 1/4
No. in Lb....	152	120	108	96	87
Lgth. Ins. ...	1 1/2	1 3/4	2	2 1/4	2 1/2
No. in Lb....	72	65	58	47	40

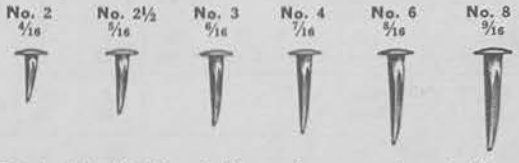
Prices on Application

LEAD HEADED NAILS

For Sheet Metal Roofing

These Nails with Lead Heads protect the holes made in the iron and prevent leaks and the formation of rust. They are made of 10 Gauge, Bright Wire Barbed and have Lead Heads 1/2 inch in diameter. There are 58 of them in one pound and 1 1/4 pounds or 70 nails are sufficient for one square of roofing.

Flat or Oval Head Copper Tacks



Packed in 1/8, 1/4 and 1/2-pound papers; 1 and 10-pound packages; 25-pound boxes; 100-pound kegs.

CUT TACKS

Blued or Tinned

Ounces	Length Inches	Ounces	Length Inches
2	1/4	12	11/16
2 1/2	5/16	14	3/4
3	3/8	16	13/16
4	7/16	18	7/8
6	1/2	20	15/16
8	9/16	22	1
10	5/8	24	1 1/8

Packed in half weight papers. One dozen papers in a package. Also packed in bulk—100, 50 and 25 pound Boxes.

CARPET TACKS

Blued or Tinned

Ounces	Length Inches	Ounces	Length Inches
3	3/8	10	5/8
4	7/16	12	11/16
6	1/2	14	3/4
8	9/16	16	13/16

Packed in half weight papers. One dozen papers in a package. Also packed in bulk—100, 50 and 25 pound Boxes.

Standard Wire Nails in Kegs — **List of Extras per 100 Lbs. Over Base**

Pennyweight sizes shown for reference only. All orders will be entered and invoiced in inches.

Size	2-D	Fine 3-D	3-D	4-D	5-D	6-D	7-D	8-D	9-D	10-D	12-D	16-D	20-D	30-D	40-D	50-D	60-D
Length in inches	1	1⅛	1¼	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	5½	6
COMMON Ge. Extra over Base	15 1.65	15 1.60	14 1.15	13 .80	12 .75	12 .60	11 .55	10 .50	10 .45	9 .40	9 .35	7 .30	6 .25	5 .25	4 .25	3 .25	2 .25
MOULDING Ge. Extra over Base	16 1.90	16 1.80	15 1.40	14 1.05	13 1.00	12 .85	12 .80	11 .75	11 .70	10 .65	9 .60	8 .55	7 .50	6 .50	5 .50	4 .50	3 .50
FINISHING Ge. Extra over Base	17 2.25	17 2.05	16 1.65	15 1.45	14 1.35	13 1.10	13 1.05	12 1.00	12 .95	11 .90	11 .85	10 .80	9 .75				

Additional extra to be added to Standard wire finishing nails of the same length { One gauge finer than Standard **25c.** per 100 lbs. / Two gauges finer than Standard **50c.** per 100 lbs.

Size	2-D	Fine 3-D	3-D	4-D	5-D	6-D	7-D	8-D	9-D	10-D	12-D	16-D	20-D	30-D	40-D	50-D	60-D
FLOORING Ge. Extra over Base						11 .85	11 .80	10 .55	10 .55	9 .45	9 .40	8 .35	7 .30				
CASING Ge. Extra over Base	17 2.00	17 2.00	16 1.65	15 1.30	14 1.25	13 1.10	13 1.05	12 .80	12 .80	11 .70	11 .65	10 .60	9 .55	9 .40	8 .40		
CLINCH Ge. Extra over Base	14 1.75		14 1.40	13 1.15	13 1.15	12 1.05	12 1.05	11 .90	10 .90	9 .85	9 .80	8 .75	7 .70				
BOX Ge. Extra over Base	16 2.20	16 2.15	15 1.40	14 1.05	14 1.00	13 .85	13 .80	12 .55	11 .55	11 .45	11 .40	10 .35	9 .30	9 .30	8 .25	6 .25	4 .25
LIGHT CAR Ge. Extra over Base				12 .95	10 .75	10 .70	9 .60	9 .50	8 .50	8 .45	7 .40	7 .30	6 .25	6 .25	5 .25	4 .25	4 .25
HEAVY CAR Ge. Extra over Base				10 .80	9 .70	9 .65	8 .60	8 .50	7 .50	7 .45	6 .35	6 .35	5 .25	5 .25	4 .25	3 .25	3 .25
SIDING OR CLAPBOARD Ge. Extra over Base					12 1.00	12 .85	12 .80	11 .55									
HINGE NAILS, Diamond Pt. Ge. Extra over Base Csk. Head.				6 1.40		3,4 or 6 1.30		3,4 or 6 1.15		3 or 4 1.10	3 or 4 1.10	3 or 4 1.10	3 or 4 1.05				
SLATING Ge. Extra over Base	12 1.45	12 1.35	11 1.20	11 1.10	10 1.00	10 .90	Longer than 2" Same Extra as 2"										
ROOFING For Metal Roofing Ge. Extra over Base	12 1.20	12 1.10	11 .95	11 .80	10 .75	10 .65	Longer than 2" Same Extra as 2"			Special Sizes				¾ x 12 or 13 1.55	⅞ x 12 1.30		1⅜ x 11 .90
Can. Large Head Roofing Ge. 7/16" Head.	10 1.65	10 1.60	10 1.55	10 1.50	10 1.45	10 1.35	10 1.30	10 1.30	10 1.25	10 1.20	Longer than 3" Same Extra as 3"				Special Sizes ¾ x 10 1.85	⅞ x 10 1.75	
BARREL OR BROOM Ge. Extra over Base	14 1.75	14 1.65	14 1.40	13 1.05						Special Sizes	½ x 12 2.85		⅝ x 14 ⅝ x 15 2.85	¾ x 14 ¾ x 15 2.50	⅞ x 14 ⅞ x 15 2.25		1⅜ x 11 1.25
SASH PINS Ge. Extra over Base	8 2.00	8 2.00	8 1.75	8 1.50	Longer than 1½"—Same Extra as 1½" 10 gauge **25c.** advance over 8 gauge					Special Sizes		⅝ x 8 2.75		¾ x 8 2.50	⅞ x 8 2.25		1⅛ x 8 1.75
L.H. Smooth—Foundry Nails Ge. ½" Head.... 8 ½" " .... 9 7/16" " ....10 7/16" " 11	1.40 1.50 1.60 1.70	1.35 1.45 1.55 1.65	1.30 1.40 1.50 1.60	1.25 1.35 1.45 1.55	1.25 1.35 1.45 1.55	1.20 1.25 1.35 1.45	1.15 1.20 1.30 1.40	1.15 1.20 1.30 1.40	1.10 1.15 1.25 1.35	1.05 1.10 1.20 1.30	Longer than 3" Same extras as 3"			Special Sizes ¾" Ge. 8—1.60 9—1.70 10—1.80 11—1.90			⅞" 1.50 1.60 1.70 1.80

COPPER NAILS — Prices on application.

PLASTER BOARD NAILS — 1-1¼-1½"—Use same Extras as Foundry Nails.

Lath and Fine Nails	1 x 16	1 x 17	1⅜ x 15	1⅛ x 16
	2.20	2.40	1.60	2.15

Shingle Nails	1¼ x 13	1¼ x 14	1½ x 12	1¾ x 12	2 x 12
	1.40	1.15	1.05	.75	.65

Berry Box or Basket Nails	¾ x 16	¾ x 17	⅞ x 16	⅞ x 17	1 x 16	1 x 17	1⅛ x 16	1⅛ x 17	1¼ x 16	1¼ x 17
	2.80	3.00	2.55	2.75	.35	2.55	2.35	2.50	2.25	2.45

COMMON SPIKES, Diamond Pt. Flat Head	3 x 6	3¼ x 6	3½ x 5	4 x 3	4½ x 3	5 x 2	5½ x 2	6 x 1	7 x 1	8 x 0	9 x 0	10 x 00	12 x 0
Extra Over Base	.40	.35	.30	.25	.25	.25	.25	.25	.25	.35	.35	.45	.45

Eavetrough Spikes 5 inch and longer x 3, 4, and 5 gauge—over same length common wire nails. { Flat head, **50c.** per 100 lbs. / Oval or round head, **75c.** per 100 lbs.

MISCELLANEOUS WIRE NAIL LIST

Applying to All Nails Not Shown Elsewhere—**Price Per Pound**

Length in inches	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4 & 1 3/8	1 1/2	1 3/4	2 & 2 1/4	2 1/2 & 2 3/4	3 & 3 1/4	3 1/2 & 4
3 Gauge	Figures shown in heavy type indicate best selling sizes.														$ .25
4	Nails heavier than listed at special net prices according to quantity.													$ .25	.25
5	Nails half gauge take list price of same length in next finer gauge.											$ .27	$ .26	.25	.25
6										$ .29	$ .28	.27	.26	.25	.25
7									$ .29	.29	.28	.27	.26	.25	.25
8							$ .30	$ .30	.29	.29	.28	.27	.26	.25	.25
9						$ .33	.30	.30	.29	.29	.28	.27	.26	.25	.25
10					$ .36	.33	.30	.30	.29	.29	.28	.27	.26	.25	.25
11					.36	.33	.30	.30	.29	.29	.28	.28	.27	.26	.26
12					.36	.33	.30	.30	.29	.29	.28	.28	.27	.27	
13					.38	.34	.31	.31	.30	.29	.28	.28	.28		
14				$ .43	.38	.35	.32	.32	.31	.30	**.29**	**.29**			
15				.45	.42	.36	.33	.32	.32	.31	.30				
16			$ .55	.50	.43	.39	.36	.35	.34	.33					
17			.60	.52	.46	**43**	.40	.40	.39						
18		$ .80	**.65**	**.58**	**.52**	**.45**	.43	.43							
19	$1.00	.90	**.75**	**.65**	**.60**										
20	1.25	**1.00**	**.85**	**.75**	.70										
21	1.55	1.25													

Discounts on application.

Other Extras Net

Barbing	per 100 lbs.	**$0.25**
Annealing	"	**.25**
Special Heads	"	**.25**
Special Points	"	**.25**
Headless	per 100 lbs.	**$0.50**
Blued or Coated	"	**.85**
Packing in 25 and 50 pound boxes	"	**1.00**
Packing in 1 pound papers	"	**2.00**

Note.—An additional net extra of $2.00 per 100 lbs. will be charged on all nails on Miscellaneous List, when ordered **in lots of less than 100 lbs.** of one size; such orders will be subject to mill acceptance.

Extras for Galvanized, Tinned, Coppered or Brass Plated Nails quoted on application.

Approximate Number of Wire Nails Per Pound

Wire Gauge	3/16	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	6	7	8	9	10	11	12
3/8										33	27	23	20	18	16	15	14	12	10	9	8	7	6	5	4 1/2	4	3 3/4	3 1/4
0										34	29	25	21	19	17	16	15	13	11	10	9	8	7	5 1/2	5	4 1/2	4	3 1/2
5/16								57	50	45	38	32	28	25	23	21	19	16	14	13	11	10	8	7	6	5 1/2	5	4 1/2
2								65	58	52	44	37	32	29	26	24	22	19	16	14	13	11	9	8	7	6 1/2	6	5 1/2
3						100	87	76	67	60	50	43	38	34	30	28	25	22	19	17	15	13	11	10	8	7 1/2		
4						120	103	90	80	72	60	51	45	40	36	33	30	26	23	20	18	15	13	11	10	9		
5				211	169	141	121	106	94	85	71	60	53	47	42	39	35	30	26	24	21	18	15					
6				247	197	164	141	123	111	99	82	71	62	55	50	45	41	35	31	28	25	21	18					
7				299	239	200	171	149	133	120	100	85	75	67	60	54	50	43	37	33	30	25						
8				345	275	229	197	172	153	137	115	98	86	76	69	62	57	49	43	39	35	29						
9				414	331	276	236	207	184	165	138	118	103	92	82	75	69	59	52	46	41							
10			663	496	397	333	283	248	220	198	165	142	124	110	99	90	83	71	62	55	50							
11			837	628	502	418	359	314	279	251	209	179	157	139	125	114	105	90	79	70								
12			1096	822	658	548	469	411	365	329	274	235	204	182	164	149	137	117	103									
13			1429	1072	857	714	613	536	476	429	357	306	268	238	214	195	178	153										
14		2840	1893	1420	1136	947	811	710	631	568	473	406	350	315	284	258	236											
15		3504	2336	1752	1402	1168	1001	876	778	701	584	500	438	389	350													
16		4571	3048	2280	1828	1523	1305	1143	1015	913	761	653	571	508														
17		6233	4156	3116	2495	2077	1781	1558	1385	1246	1038	890	779															
18		8276	5517	4138	3310	2758	2364	2069	1839	1655	1379	1182																
19		10668	7112	5334	4267	3556	2933	2667	2370	2133	1778																	
20	20000	15000	10000	7500	6000	5000	4400	3750	3333	3000																		
21	23702	17777	11850	8888	7111	5926	5079	4444																				
22	30476	22856	15237	11428	9143	7618																						

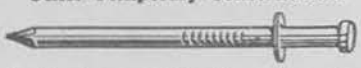
These approximate numbers are an Average only, and the figures given may be varied either way, by changes in the dimensions of the heads or points. Brads and no-head nails will run more to the pound than table shows, and large or thick-headed nails will run less.

OUR MAIL ORDER SERVICE HELPS US TO HELP YOU.

Do not hold your orders. Send them in to us by first mail as soon as you find that you need the goods. The service we render is good and we are careful to see that goods are shipped promptly.

Duplex-Head Nails

For Scaffolds, Concrete Forms and Other Temporary Constructions



Duplex-head nails are easy to drive and easy to pull. Made with sharp points, and with two substantial heads, a primary head for driving and pulling, and a large secondary head for holding the lumber securely and providing a spacing for the pulling claws. Easy to pull out and can be reused.

Size	No. Per Lb.	Size	No. Per Lb.	Size	No. Per Lb
6d	150	10d	62	20d	29
8d	88	16d	44	30d	20

Square Boat Spikes

Open Hearth, Hot Pressed

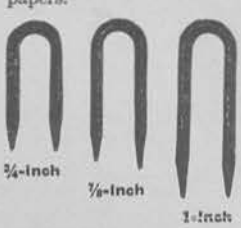
Approximate Number of Boat Spikes to 200-Pound Keg

Spike Size, In. Square	Length, Inches 4	5	6	7	8
5/16	....	...	...	...	214
1/2	....	...	...	...	324
7/16	....	...	...	480	438
5/8	1,114	930	816	690	622
11/16	1,776	1,342	1,124	978	858
3/4	2,576	2,134	1,778	1,488	1,382

Spike Size In. Square	Length, Inches 9	10	11	12	13	14
5/8	190	176	...	144	...	122
1/2	286	258	244	220	...	192
7/16	...	378	...	...	...	...
5/8	532	492	...	434	...	...
11/16	776	706	...	...	...	...
3/4	...	...	...	...	...	...

Galvanized Poultry Netting Staples

Packed in 100-pound kegs; 50, 25, 10 and 5-pound wooden boxes; 5 and 10-pound paper boxes, and 1/2 and 1-pound papers.



All 5 and 10-pound paper packages are packed in wooden boxes for shipment.

Gauge No.	Length Inches	Number per Pound	Price per Pound
14	3/4	480	.....
14	7/8	416	.....
14	1	352	.....

Steel Spring Cotters

Beveled Points

Price per 1000

Lgth. In.	Diameter, Inches 1/16	3/32	1/8	5/32	3/16	1/4	5/16	3/8	1/2	5/8
1/2	$.35	$.40	$.55	....	....	....	....	.....	.....	.....
3/4	.45	.53	.75	$1.20	$1.70	....	....	.....	.....	.....
1	.55	.65	.90	1.45	2.05	$3.40	$5.30	.....	.....	.....
1 1/4	.65	.78	1.10	1.70	2.40	4.00	6.20	.....	.....	.....
1 1/2	.75	.90	1.25	1.95	2.75	4.60	7.10	$10.50	.....	.....
1 3/4	.95	1.03	1.45	2.20	3.10	5.20	8.05	.....	.....	.....
2	1.05	1.15	1.60	2.45	3.45	5.80	9.00	13.00	$25.00	.....
2 1/4	....	....	....	2.70	3.80	6.40	9.90	.....	.....	.....
2 1/2	....	1.55	2.00	2.95	4.15	7.00	10.80	15.50	30.00	.....
3	.....	.....	2.50	3.45	5.00	7.80	11.70	18.00	35.00	$57.50
3 1/2	....	....	....	....	5.75	8.60	13.90	20.50	40.00	64.75
4	....	....	....	....	6.50	9.40	16.10	23.00	45.00	72.00
5	....	....	....	....	....	....	18.30	27.00	55.00	85.00
6	....	....	....	....	....	....	....	31.00	65.00	98.00

All measurements made under the eye.

Number of Cotters in a Box

1/16 In. Diameter, All Lengths 1000
3/32 and 1/8 In. Diam., Lengths to 1 1/2 Inches, Incl 1000
3/32 and 1/8 In. Diam., Lengths Longer Than 1 1/2 Inches ... 500
5/32 and 3/16 In. Diam., Lengths to 1 Inch, Incl 1000
5/32 and 3/16 In. Diam., 1 1/4 and 1 1/2-Inch Lengths 500
5/32 and 3/16 In. Diam., Longer Than 1 1/4 and 1 1/2 In 250
1/4 Inch Diameter, Lengths to 1 Inch Inclusive 500
1/4 Inch Diameter, Lengths Longer Than 1 Inch 250
5/16 Inch Diameter, Lengths to 2 Inches, Inclusive 250
5/16 Inch Diameter, Lengths 2 1/4 to 3 Inches, Incl 125
5/16 Inch Diameter, Lengths Longer Than 2 1/4 to 3 In... Bulk

Diameters, 3/8, 7/16, 1/2, 5/8 and 3/4 inches, all lengths, packed in bulk.

Prices are for standard packages; extra for other than standard packing.

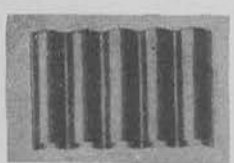
Brass Spring Cotters

Brass cotter list, 8 times steel list.

CORRUGATED JOINT FASTENERS

LIST PRICE PER THOUSAND, PLAIN AND SAW EDGE

Number of Corrugations	Inches in Depth 1/4	3/8	1/2	5/8	3/4	7/8	1
No. 2.....	$0.45	$0.55	$0.60	$0.80	$0.90	$1.00	$1.15
" 3.....	.60	.75	.85	1.00	1.15	1.35	1.45
" 4.....	.75	.95	1.05	1.30	1.45	1.75	1.85
" 5.....	.90	1.20	1.30	1.70	1.85	2.20	2.40
" 6.....	1.10	1.40	1.50	1.85	2.15	2.55	2.85
" 7.....	1.30	1.60	1.80	2.20	2.50	3.00	3.35



Plain Edge

Saw Edge

Packages contain 250 Fasteners each.

In ordering give depth and number of corrugations: as 1/4 inch No. 4, etc.

Wire Rope

Proper Working Loads

For general usages it is not advisable for the working load of a wire rope, particularly running ropes, to exceed one fifth of the breaking strength. In other words, the factor of safety should not be less than five. In order to determine the proper working load, divide the breaking strength by the proper factor of safety; e.g. a ⅞ inch diameter 6 x 19 plow steel rope has a breaking strength of 28 tons and with a factor of safety of five the proper working load would not be over 5.6 tons.

Proper Sizes of Sheaves and Drums

It is advisable to carefully examine the sheaves and drums for proper size, free running and proper groove diameters in order to obtain the most economical wire rope service. The sheave and drum equipment should be designed so that the tread diameters are approximately as follows:

Average Diameters Recommended

For 6 x 7 Rope, 72 times Rope Diameter
For 6 x 19 Rope, 45 times Rope Diameter
For 6 x 37 Rope, 27 times Rope Diameter
For 8 x 19 Rope, 31 times Rope Diameter

For economical service, various conditions require changes from these diameters. For example on large hoisting installations, sheaves for use with 6 x 7 rope are some times set at 96 times the rope diameter, and, for 6 x 19 rope are some times set as 90 times rope diameter.

It follows that for certain classes of service, ratios smaller than these are possible and economical, but it is advisable never to allow sheave and drum diameters to be set below the following:

Minimum Diameters

For 6 x 7 Rope, 42 times Rope Diameter
For 6 x 19 Rope, 30 times Rope Diameter
For 6 x 37 Rope, 18 times Rope Diameter
For 8 x 19 Rope, 21 times Rope Diameter

It should be thoroughly appreciated that diameters larger than those listed as minimum will give increased rope life, and consequently more economical service.

ORDERING OF WIRE ROPES

The following information should be given on your order for wire rope:

1. Length in feet.
2. Diameter in inches.
3. Construction, as 6 x 19, 6 x 27 Flattened Strand, etc.
4. Grade, as "Green Strand," etc.
5. "Tru-lay" or Standard Rope.
6. Lay, as Regular or Lang Lay, Right or Left Lay.
7. Centre in rope, either a manila centre or an independent wire rope centre (IWRC)

The Right and Wrong Way to Measure Wire Rope

The diameter of a wire rope is that of a circle enclosing the rope. Care should be taken to obtain this diameter correctly. Fig. 1 shows correct measurement of a 1½ inch rope, while when measured incorrectly, as Fig. 2, the diameter reads 1⅜ inches.

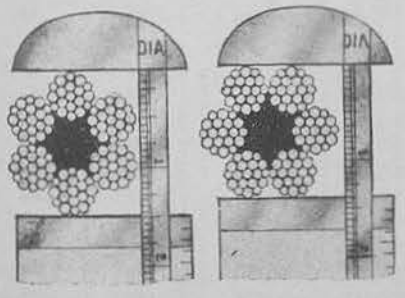
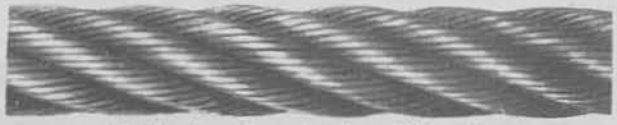


Fig. 1 Correct Measurement

Fig. 2 Incorrect Measurement

LAYS OF WIRE ROPES



Right Lay Regular Lay Wire Rope

Left Lay Regular Lay Wire Rope

Right Lay Lang Lay Wire Rope

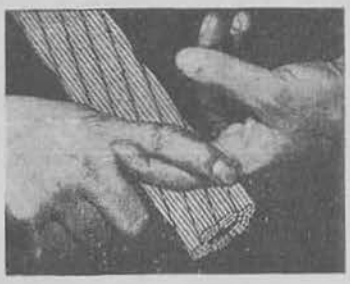
Alternate Right and Left Lay Wire Rope

In Regular Lay Wire ropes, the outer wires of the rope are parallel with the longitudinal axis of the rope.

In Lang lay wire ropes, the outer wires of the rope are diagonal with the longitudinal axis of the rope.

Right Lay Regular Lay wire ropes will be furnished unless otherwise specified.

TRU-LAY PREFORMED WIRE ROPE



As shown in the illustration, preforming means that wires and strands are preformed or preshaped to the exact helical position they assume in the completed rope structure. Instead of a straightening out tendency, Tru-Lay Preformed Wire Rope strands lie naturally in position.

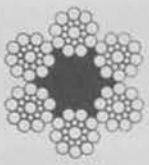
In Tru-Lay Preformed Wire Rope the strands are free to work without undue internal friction. The lack of internal stress eliminates premature failure due to fatigue. Each strand carries an equal share of the load and wear, and accounts for the fact that this rope gives from 30% to 300% increased service over ordinary wire rope. Tru-Lay Rope should be cut without seizing the end. The wires lie in position—no unravelling or unstranding.

This rope bends easily and hugs closely to drums and sheaves with less slippage.

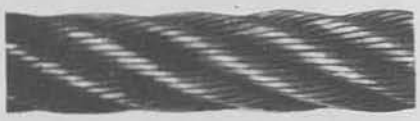
All of the advantages of Tru-Lay Wire Rope tend to greater safety. Tru-Lay Rope is safer in the hands of workmen as broken wires will not protrude.

6 x 19 Hoisting Ropes

Standard



6 x 19
Seale



BREAKING STRENGTHS IN TONS

Diam. Inches	Weight per ft. in lbs.	Cast Steel	Mild Plow	Best Plow	GREEN STRAND
1/4	.10	2	2.3	2.5	2.7
5/16	.16	3	3.3	3.7	4
3/8	.23	4.5	5	5.6	6
7/16	.31	6	6.7	7.4	8
1/2	.40	8	9	10	10.8
9/16	.51	10	11.2	12.3	13.5
5/8	.63	12.5	14	15.5	17
3/4	.90	17.5	20.5	23	25
7/8	1.23	23	26	29	33
1	1.60	31	34	38	42
1 1/8	2.03	40	45	49	54
1 1/4	2.50	49	55	60	66
1 3/8	3.03	61	68	75	84
1 1/2	3.60	72	80	89	98
1 5/8	4.23	84	94	104	114
1 3/4	4.90	97	108	120	133
1 7/8	5.63	116	127	143	156
2	6.40	125	140	155	169
2 1/8	7.23	140	160	175	190
2 1/4	8.10	155	175	193	210
2 3/8	9	173	195	214	237
2 1/2	10	190	215	235	263
2 3/4	12.10	225	250	280	315

6 x 37 Hoisting Ropes

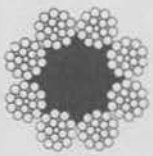
Special Flexible

BREAKING STRENGTHS IN TONS

Diam. Inches	Weight per ft. in lbs.	Cast Steel	Mild Plow	Best Plow	GREEN STRAND
1/4	.10	1.9	2.1	2.3	2.6
5/16	.15	3	3.3	3.7	4.1
3/8	.22	4.2	4.6	5	5.4
7/16	.30	5.5	6.4	7	7.5
1/2	.39	7.6	8.6	9.5	10
9/16	.49	9.5	10.5	11.5	12.5
5/8	.61	11.9	13.3	14.5	15.5
3/4	.87	17.5	19	21	23
7/8	1.19	23	25	28	30
1	1.55	29	33	36	40
1 1/8	1.96	36	40	45	49
1 1/4	2.42	45	50	55	60
1 3/8	2.93	56	63	69	76
1 1/2	3.49	67	75	83	90
1 5/8	4.09	79	89	98	107
1 3/4	4.75	89	100	110	121
1 7/8	5.45	108	120	133	146
2	6.20	115	129	142	155
2 1/8	7.00	135	150	165	180
2 1/4	7.85	150	167	185	201
2 1/2	9.70	182	204	225	245
2 3/4	11.72	218	244	269	293
3	13.95	265	295	330	345
3 1/4	16.37	315	355	390	410
3 1/2	19.00	360	400	440	465

8 x 19 Elevator Ropes

Extra Flexible



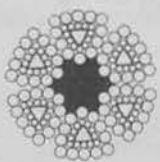
8 x 19
Special Filler Wire

BREAKING STRENGTHS IN TONS

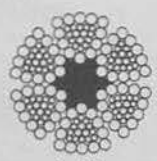
Diam. Inches	Weight per ft. in lbs.	Swedes Iron	Traction Steel
1/4	.09	.85	1.4
5/16	.14	1.25	2.4
3/8	.20	1.80	3.7
7/16	.28	2.40	5
1/2	.36	3.25	6.5
9/16	.46	4	8
5/8	.57	5	10
3/4	.82	7.2	14
7/8	1.11	10	19
1	1.45	12.8	25

6 x 25 and 6 x 27 Flattened Strand Ropes

for Hoisting, Draglines, etc.



6 x 25
Type "B"



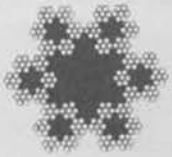
6 x 27
Type "B3"

BREAKING STRENGTHS IN TONS

Diam. Inches	Weight per ft. in lbs.	Cast Steel	Mild Plow	Best Plow	GREEN STRAND
5/8	.70	14.7	16.4	18	19
3/4	1.01	21	23.5	26	27.5
7/8	1.39	29	32.5	36	37.5
1	1.80	36	40	44	47
1 1/8	2.28	47	53	59	62
1 1/4	2.81	58	65	72	75
1 3/8	3.40	68	75	84	88
1 1/2	4.05	81	90	100	105
1 5/8	4.75	97	108	120	126
1 3/4	5.51	111	124	137	144
1 7/8	6.40	127	141	157	165
2	7.20	146	163	181	190

6 x 42 Tiller Ropes

6 x 6 x 7 Construction

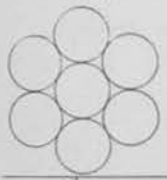


BREAKING STRENGTHS IN TONS

Diam. Inches	Weight per ft. in lbs.	Iron	Cast Steel	Best Plow
3/16	.042	.36	.70	.85
1/4	.07	.60	1.20	1.40
5/16	.11	.90	1.75	2.10
3/8	.16	1.40	2.75	3.40
7/16	.21	1.85	3.60	4.40
1/2	.28	2.35	4.5	5.6
9/16	.35	2.90	5.6	6.7
5/8	.43	3.85	7.4	9.2
3/4	.62	5.35	10	12.5
7/8	.84	7.50	14	17.5
1	1.10	9.40	18	22

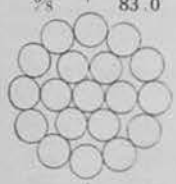
Galvanized Steel Strand

for Guys, Messenger Cable, Signals, Fencing, etc.



1 x 7 Strand

Diam. Strand Inches	Weight per 100 ft. in lbs.	BREAKING STRENGTHS IN POUNDS			
		Soft Steel	Hard Steel	Cast Steel	Best Plow
3/16	8.1	1,400	2,300	4,000	5,000
7/32	10.0	1,750	2,800	4,900	6,000
1/4	13.0	2,300	3,600	6,300	7,700
9/32	17.5	3,100	4,800	8,500	10,000
5/16	21.0	3,800	5,800	10,000	12,500
11/32	25.0	4,500	6,900	12,000	14,500
3/8	30.0	5,600	8,000	14,000	17,000
7/16	41.5	7,500	11,000	20,000	24,000
1/2	53.0	9,500	14,000	25,000	31,000
9/16	67.0	12,000	18,000	32,000	40,000
5/8	83.0	15,000	23,000	40,000	49,000



1 x 19 Strand

1/2	52	9,400	15,000	24,000	29,000
9/16	66	12,000	19,000	31,000	37,000
5/8	81	15,000	23,000	38,000	45,000
11/16	97	18,000	27,000	45,000	54,000
3/4	117	21,000	33,000	55,000	65,000
13/16	137	25,000	38,000	64,000	76,000
7/8	160	29,000	45,000	74,000	89,000
15/16	183	33,000	51,000	85,000	102,000
1	207	38,000	58,000	96,000	115,000

Samson Spot Sash Cord

Made of extra quality stock carefully inspected and warranted free from imperfections of braid or finish. The colored spots are a trade mark used only with this cord. Guaranteed to give satisfactory service when used with pulleys and weights recommended.

Size, No.	Per Pound	Diam. Inches	Feet per Pound	Min. Diam. Pulley Inches	Suitable for Weight Pounds
6	....	3/16	66	1 1/2	Less than 10
7	....	7/32	55	1 3/4	10 to 15
8	....	1/4	44	2	15 to 25
9	....	9/32	36	2 1/4	25 to 35
10	....	5/16	27	2 1/2	35 to 45
12	....	3/8	20	3	45 to 60

White Cotton Braided Sash Cord

All sizes carried in 100 foot hanks.

Size No.	Per Pound	Diam. Inches	Feet per Pound	Min. Diam. Pulley Inches
6	....	3/16	66	1 1/2
7	....	7/32	55	1 3/4
8	....	1/4	44	2
9	....	9/32	36	2 1/4
10	....	5/16	27	2 1/2
12	....	3/8	20	3
14	....	7/16	14	...
16	....	1/2	11	...

No. 5 Chalk Lines

No.	No. of Feet in Ball
5	50
5	100

Put up in 1-pound balls.

Prices upon application.

TARRED MARLIN

India Tarred Marlin, **2 Ply**

No. 11 —In 1 Lb. Balls.

Prices upon application.

No. 18 B C Flax Wrapping Twines

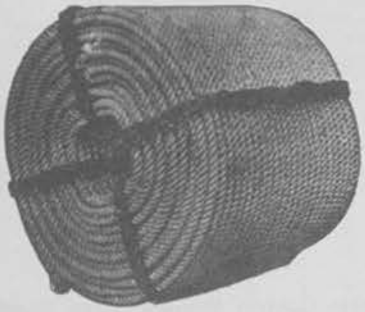
Hard laid, dark gray color.

No. **18** B C, 1/4-lb. Balls

Prices upon application.

Manila Rope

3-Strand



Our rope is made exclusively of selected high quality manila fibre. No other fibre compares with manila in length, strength, and lasting qualities. Accordingly a good manila rope should be used where maximum strength and durability are of vital importance. Manila rope is employed for marine purposes and contractors' use. The regular lay, or three strand rope is intended for general all-around use. Each strand contains from two up to several hundred yarns, according to the size of the rope. Sizes up to ½" diameter are often refered to as 6 thd., 21 thd., etc.

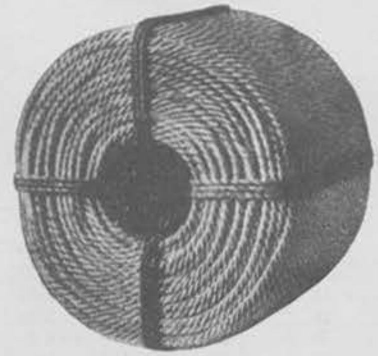
Regular lay is a medium twist, firm enough to keep its shape and will stand ordinary pressure, but with lay adjusted to permit easy handling, splicing, etc.

Regular lay will be furnished unless otherwise specified. Coils of manila rope are understood to mean regular full coils of approximately 1200 feet in length (less than ½ inch diameter) which run longer. In the case of ¼" diameter the length is approximately 3,020 feet.

Working strains are figured at about 20% of tensile strengths for efficiency in every day service, although somewhat higher loads are not unsafe for temporary use.

Diameter Inches	Circumference Inches	Thread	Length Per Pound Ft.	In.	Length Feet per Coil	Weight Pounds per Coil	Tensile Strength Pounds
3/16	½	6 Fine	77	....	3850	50	480
¼	¾	6	60	5	3020	50	620
5/16	1	9	39	5	1970	50	1000
⅜	1⅛	12	29	....	1455	50	1275
7/16	1¼	15	18	6	1200	65	1850
15/32	1⅜	18	16	....	1200	75	2250
½	1½	21	13	4	1200	90	2650
9/16	1¾	..	10	....	1200	120	3250
⅝	2	..	8	2	1200	147	4150
¾	2¼	..	6	1	840	139	5550
13/16	2½	..	5	1	840	164	6650
⅞	2¾	..	4	5	840	189	8000
1	3	..	3	8	840	227	9200
1 1/16	3¼	..	3	2	840	265	10700
1⅛	3½	..	2	9	840	302	12400
1¼	3¾	..	2	5	840	353	14000
1 5/16	4	..	2	1	840	403	16000
1⅜	4¼	..	1	10	840	451	17900
1½	4½	..	1	8	840	504	19850
1⅝	5	..	1	4	840	630	24100
1¾	5½	..	1	1	840	756	28600
2	6	..	..	11	840	907	33200
2⅛	6½	..	..	9½	840	1058	38300
2¼	7	..	..	8	840	1235	42900
2½	7½	..	..	7	840	1411	49100
2⅝	8	..	..	6¼	840	1613	55200
2⅞	8½	..	..	5½	840	1813	61300
3	9	..	..	5	840	2041	68500
3⅛	9½	..	..	4½	840	2268	75100
3¼	10	..	..	4	840	2520	83300

Plymouth Manila Net Rope



Section—one-half actual size—and Coil Plymouth Manila Dry Net Rope, twelve-thread, left-laid, soft.

A high grade Manila line, three strand made from same quality of fiber as our regular Manila rope and used for reinforcing the edges of fishing nets. Can be furnished tarred or untarred and in both right and left-hand lays:

Right lay furnished unless otherwise ordered.

Laid soft or extra soft as desired.

Non-kinking and water resisting.

Not sold in cut pieces.

Drillwell Manila Drilling Cables

Made from carefully chosen grades of fibre. Every care is taken in the manufacture of cable as to spinning the yarn, the lay of strand, lubrication, etc., in order to get strength and wearing quality. Drilling cables are made three ropes laid into one, or nine strands, so formed as to be thoroughly uniform, of correct lay and tension in each of the three ropes, or thirds, forming the finished product.

Drilling cables are referred to as hawser laid rope, that is, three ropes twisted together, the twist being in opposite directions to the twist of the ropes, and is usually left hand, the advantage over other types of rope being that a properly made hawser laid rope has greater elasticity or springiness and greater wearing surfaces. Sizes range from 1¼ to 2 inches in diameter.

All drilling cables are especially lubricated to prevent internal friction.

Diam. Inches	Wt., Lbs. per 1000 Feet	Diam. Inches	Wt., Lbs. per 1000 Feet	Diam. Inches	Wt., Lbs. per 1000 Feet
2¼	1937	1⅞	1375	1½	875
2⅛	1688	1¾	1250	1⅜	594
2	1438	1⅝	1000	...	...

The above weights are approximate, and may vary slightly over or under the figures given.

Sand lines (manila) are similar in construction to drilling cables, but smaller in size, ranging from ⅝ to 1¼ inch diameter, generally ⅝, ⅞, and 1 inch. Tubing Lines and Sucker Rod Lines carry the same prices as drilling lines, construction being similar. Manila tubing lines range from 1¾ to 2½ inch diameter. Manila sucker rod lines usually range from 1¼ to 1¾ inch diameter. Cables also furnished made of fine yarns termed bolted drilling cables. This type of cable is sold at an advance over the regular cable.

Prices upon application.

Regular Wood Shell Tackle Blocks for Manila Rope

Inside Iron Strapped, Iron Sheaves, Loose Hooks

Single Double Triple

Beckets furnished on all single, one-half, double and one-third of the triple blocks, without charge. If a greater number are wanted, add for each additional becket five cents net for beckets in blocks 5 inches and under, and one cent per inch of shell, in length, for each additional becket in sizes larger.

Star Graphite or Iron Bushed

Dimensions, Inches			Price, Each		
Sheaves	Diam., Rope	Shell	Single	Double	Triple
1¾x ½x⅜	⅜	3	.70	1.30	1.75
2 x ½x⅜	⅜	3½	.75	1.45	2.00
2¼x ⅝x⅜	½	4	.85	1.60	2.15
3 x ¾x⅜	⅝	5	.90	1.75	2.25
3½x1 x½	⅝–¾	6	1.10	2.00	2.90
4¼x1 x½	⅞	7	1.30	2.40	3.50
4¾x1⅛x⅝	1	8	1.65	2.85	4.25
5½x1⅛x⅝	1	9	1.85	3.40	4.75
6¼x1¼x⅝	1⅛	10	2.75	4.50	6.25
7¼x1¼x¾	1⅛	11	4.45	7.50	10.65
8 x1⅜x¾	1¼	12	4.45	7.50	10.65
9 x1½x¾	1¼	13	7.00	10.50	15.00
9½x1⅝x⅞	1⅜	14	7.00	10.50	15.00
10 x1⅝x⅞	1½	15	8.00	13.00	18.00
11 x1¾x⅞	1⅝	16	10.00	15.00	22.00

Patent Six—Roller Bushed

Dimensions, Inches			Price, Each		
Sheaves	Diam., Rope	Shell	Single	Double	Triple
1¾x ½x⅜	⅜	3	1.10	2.00	2.90
2 x ½x⅜	⅜	3½	1.15	2.20	3.15
2¼x ⅝x⅜	½	4	1.20	2.25	3.25
3 x ¾x⅜	⅝	5	1.25	2.35	3.50
3½x1 x½	⅝–¾	6	1.50	2.85	4.40
4¼x1 x½	⅞	7	1.70	3.35	5.00
4¾x1⅛x⅝	1	8	2.25	4.15	6.00
5½x1⅛x⅝	1	9	2.50	4.70	7.25
6¼x1¼x⅝	1⅛	10	3.50	6.00	8.50
7¼x1¼x¾	1⅛	11	5.30	9.20	13.20
8 x1⅜x¾	1¼	12	5.30	9.20	13.20
9 x1½x¾	1¼	13	8.15	12.80	18.45
9½x1⅝x⅞	1⅜	14	8.15	12.80	18.45
10 x1⅝x⅞	1½	15	9.25	15.50	21.75
11 x1¾x⅞	1⅝	16	11.50	18.00	26.50

Graphite Bronze or Metaline Bushed

Dimensions, Inches			Price, Each		
Sheaves	Diam., Rope	Shell	Single	Double	Triple
2¼x ⅝x⅜	½	4	1.50	2.90	4.15
3 x ¾x⅜	⅝	5	1.75	3.35	4.75
3½x1 x½	⅝–¾	6	2.20	4.00	5.80
4¼x1 x½	⅞	7	2.50	4.50	6.70
4¾x1⅛x⅝	1	8	3.25	5.70	8.50
5½x1⅛x⅝	1	9	3.70	6.75	10.00
6¼x1¼x⅝	1⅛	10	4.75	8.50	12.50
7¼x1¼x¾	1⅛	11	6.75	12.50	18.50
8 x1⅜x¾	1¼	12	6.75	12.50	18.50
9 x1½x¾	1¼	13	9.75	17.00	25.00
9½x1⅝x⅞	1⅜	14	9.75	17.00	25.00
10 x1⅝x⅞	1½	15	11.00	19.50	28.50
11 x1¾x⅞	1⅝	16	14.00	24.00	34.00

Steel Tackle Blocks for Manila Rope

With Loose Hooks

Single Double Triple

A low priced pressed steel block. The plates are finely rounded and are of liberal thickness. The double and triple blocks have supporting center straps, greatly adding to their strength. Hooks, straps, plates and pins are of the highest grade steel and the sheaves are gray iron.

The only light steel block made with center straps in double blocks on sizes 6-inch and larger.

Iron Bushed

Dimensions, Inches		Price, Each		
Diam., Rope	Shell	Single	Double	Triple
⅜	3	.70	1.30	1.75
½	4	.85	1.60	2.15
⅝	5	.90	1.75	2.25
¾	6	1.10	2.00	2.90
⅞	7	1.30	2.40	3.50
1	8	1.65	2.85	4.25
1	9	1.85	3.40	4.75
1⅛	10	2.75	4.50	6.25
1¼	12	4.45	7.50	10.65

Patent Six-Roller Bushed

Dimensions, Inches		Price, Each		
Diam., Rope	Shell	Single	Double	Triple
⅜	3	1.10	2.00	2.90
½	4	1.20	2.25	3.25
⅝	5	1.25	2.35	3.50
¾	6	1.50	2.85	4.40
⅞	7	1.70	3.35	5.00
1	8	2.25	4.15	6.00
1	9	2.50	4.70	7.25
1⅛	10	3.50	6.00	8.50
1¼	12	5.30	9.20	13.20

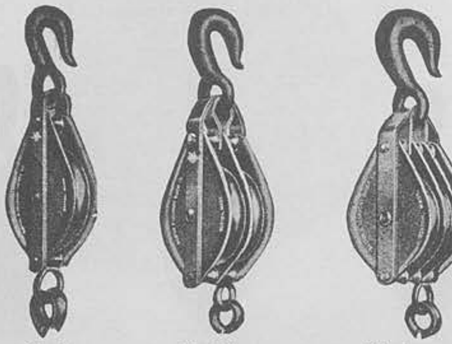
Graphite Bronze Bushed

Self-Lubricating

Dimensions, Inches		Price, Each		
Diam., Rope	Shell	Single	Double	Triple
⅜	3	....	....	....
½	4	1.50	2.90	4.15
⅝	5	1.75	3.35	4.75
¾	6	2.20	4.00	5.80
⅞	7	2.50	4.50	6.70
1	8	3.25	5.70	8.50
1	9	3.70	6.75	10.00
1⅛	10	4.75	8.50	12.50
1¼	12	6.75	12.50	18.50

Heavy Steel Tackle Blocks for Manila Rope

With Extra Heavy Loose Hooks



Single **Double** **Triple**

Blocks have pressed steel shells. Shells are of such thickness that almost any amount of hard usage will not bend them and edges are finely rounded to protect the rope. Hooks and straps are very heavy and of special forging steel. These blocks can be furnished for wire rope, if desired, either iron bushed or graphite-bronze bushed self-lubricating.

Sheaves in 8-inch blocks and smaller are same sizes as in regular mortise wood blocks.

Sheaves in 9-inch blocks and larger are same sizes as in wide mortise wood blocks.

Iron Bushed

Dimensions, Inches: Sheaves	Diam., Rope	Shell	Price, Each: Single	Double	Triple
2¼x ⅝x ⅜	½	4	.90	1.75	2.50
3 x ¾x ⅜	⅝	5	1.00	1.90	2.75
3½x1 x ½	¾	6	1.25	2.25	3.25
4¼x1 x ½	⅞	7	1.50	2.70	4.00
4¾x1⅛x ⅝	1	8	1.85	3.20	4.75
5½x1⅜x ⅝	1⅛	9	2.40	4.00	5.50
6¼x1½x ¾	1¼	10	3.10	5.10	7.00
8 x1⅝x ¾	1½	12	5.00	8.25	11.75
9½x1⅞x ⅞	1¾	14	7.50	11.75	16.50
11 x2¼x1	2	16	13.00	21.00	32.00
12 x2⅝x1⅛	2¼	18	22.00	35.00	50.00
13½x3 x1¼	2½	20	30.00	50.00	65.00

Patent Six-Roller Bushed

Dimensions, Inches: Size Sheave	Diam., Rope	Shell	Price, Each: Single	Double	Triple
2¼x ⅝x ⅜	½	4	1.40	2.60	3.75
3 x ¾x ⅜	⅝	5	1.50	2.90	4.25
3½x1 x ½	¾	6	1.75	3.25	4.75
4¼x1 x ½	⅞	7	2.10	3.85	5.80
4¾x1⅛x ⅝	1	8	2.55	4.60	6.85
5½x1⅜x ⅝	1⅛	9	3.20	5.60	7.90
6¼x1½x ¾	1¼	10	4.05	7.00	9.85
8 x1⅝x ¾	1½	12	6.00	10.35	14.90
9½x1⅞x ⅞	1¾	14	8.75	14.25	20.25
11 x2¼x1	2	16	14.00	24.00	35.00

Graphite Bronze Bushed

Dimensions, Inches: Size Sheaves	Diam., Rope	Shell	Price, Each: Single	Double	Triple
2¼x ⅝x ⅜	½	4	1.65	3.25	4.75
3 x ¾x ⅜	⅝	5	1.80	3.50	5.15
3½x1 x ½	¾	6	2.10	4.00	5.80
4¼x1 x ½	⅞	7	2.45	4.60	6.85
4¾x1⅛x ⅝	1	8	2.90	5.30	7.90
5½x1⅜x ⅝	1⅛	9	3.55	6.30	9.00
6¼x1½x ¾	1¼	10	4.40	7.70	11.00
8 x1⅝x ¾	1½	12	6.45	11.15	16.00
9½x1⅞x ⅞	1¾	14	9.10	15.00	21.30
11 x2¼x1	2	16	15.00	25.00	38.00
12 x2⅝x1⅛	2¼	18	25.00	41.00	59.00
13½x3 x1¼	2½	20	34.00	58.00	77.00

Wood Shell Snatch Blocks for Manila Rope

Drop Link

Has drop forged, flatted hook. Also furnished with bail, or with drop forged swivel eye.

Dimensions, Inches: Sheaves	Diam. Rope	Shell	Iron Bushed Each	Star Graphite Bushed Self-Lubricating Each	Patent Six-Roller Bushed Each	Graphite-Bronze Bushed Self-Lubricating Each
3 x1⅛x ½	⅞	6	4.00	4.00	4.65	5.25
3½x1¼x ½	⅞	7	4.75	4.75	5.50	6.00
4½x1⅜x ⅝	1	8	5.75	5.75	6.60	7.25
5 x1⅜x ⅝	1⅛	9	6.75	6.75	7.75	8.50
5¾x1⅞x ¾	1¼	10	8.50	8.50	10.00	11.00
6¾x2⅛x ¾	1½	12	10.00	10.00	11.50	13.00
8 x2¼x ⅞	1¾	14	13.00	13.00	15.00	16.50
9 x2⅝x1	2	16	17.00	17.00	20.00	22.00
10 x3 x1⅛	2¼	18	25.00	25.00	28.50	31.00
11 x3½x1¼	2½	20	38.00	38.00	43.00	46.00
11¾x4¼x1½	3	22	55.00	55.00	63.00	68.00
12½x4½x1½	3½	24	70.00	70.00	78.00	86.00
14 x4¾x1¾	4	26	90.00	90.00	.....	110.00

Steel Shell Snatch Blocks for Manila Rope

Drop Link

Made with drop forged hooks, heads and links. Hooks are flatted. The shells are made of heavy steel plate, nicely rounded to prevent chafing rope. Double side straps extend to bottom of shell. Blocks furnished with sheaves for wire rope, if desired. Also furnished with Boston Head, bailor drop forged oblong swivel eye.

Dimensions, Inches: Sheaves	Diam. Rope	Shell	Price, Each: Iron Bushed	Star Graphite Bushed Self-Lubricating	Patent Six-Roller Bushed	Graphite Bronze Bushed Self-Lubricating
3 x1⅛x ½	⅞	6	4.00	4.00	4.65	5.25
3½x1¼x ½	⅞	7	4.75	4.75	5.50	6.00
4½x1⅜x ⅝	1	8	5.75	5.75	6.60	7.25
5 x1⅜x ⅝	1⅛	9	6.75	6.75	7.75	8.50
5¾x1⅞x ¾	1¼	10	8.50	8.50	10.00	11.00
6¾x2⅛x ¾	1½	12	10.00	10.00	11.50	13.00
8 x2¼x ⅞	1¾	14	13.00	13.00	15.00	16.50
9 x2⅝x1	2	16	17.00	17.00	20.00	22.00
10 x3 x1⅛	2¼	18	25.00	25.00	28.50	31.00
11 x3½x1¼	2½	20	38.00	38.00	43.00	46.00
11¾x4¼x1½	3	22	55.00	55.00	63.00	68.00
12½x4½x1½	3½	24	70.00	70.00	78.00	86.00
14 x4¾x1¾	4	26	90.00	90.00	.....	110.00

Diamond Wire Rope Tackle Blocks

Regular Pattern

Double with Loose Hook	Double with Stiff Swivel Hook	Single with Shackle

An excellent line of blocks that will render the best of service.

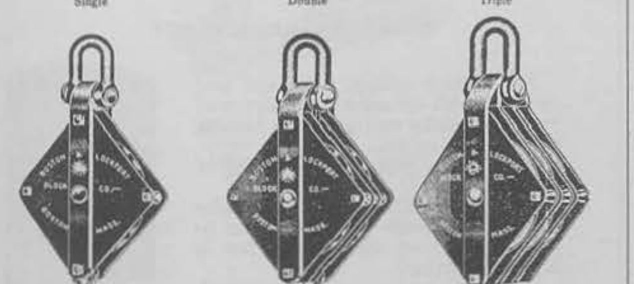
Hooks are drop forged, flatted.

Dimensions Inches Sheave	Diam. Rope	Iron Bushed Single Each	Double Each	Triple Each	Star Metaune or Graphite-Bronze Bushed Self-Lubrictaing Single Each	Double Each	Triple Each
6x1 x ¾	⅜	6.00	11.00	14.00	9.00	17.00	22.00
8x1¼x ⅞	½	8.00	13.00	16.00	11.00	19.00	24.00
10x1¼x ⅞	⅝	10.00	15.00	20.00	13.00	21.00	28.00
12x1½x1	⅝	12.00	17.00	23.00	15.00	23.00	31.00
14x1½x1⅛	¾	14.00	19.00	26.00	17.00	25.00	34.00
16x1¾x1¼	⅞	21.50	31.00	39.50	25.00	38.00	50.00

DIAMOND WIRE ROPE BLOCKS HEAVY PATTERN

WITH SHACKLES

Single Double Triple



These blocks are made of the finest steel, drop forged flatted hooks. Loose hook and shackle block having double center plates in blocks size 12 inches and larger. The center straps are also double and extend to the bottom of the block.

DIMENSIONS Size of Sheave	For Diam. Rope	GRAPHITE-BRONZE BUSHED Single	Double	Triple	COMMON IRON BUSHED Single	Double	Triple
6 x 1 x ¾	½ in.	$12.00	$20.00	$28.00	$9.00	$14.00	$20.00
8 x 1¼ x ⅞	½ "	14.00	22.00	32.00	11.00	16.00	22.50
10 x 1¼ x 1	⅝ "	17.00	26.00	37.00	14.00	20.00	28.00
12 x 1½ x 1⅛	⅝ "	19.00	29.00	41.00	16.00	23.00	31.00
14 x 1½ x 1¼	¾ "	21.00	31.00	45.00	18.00	25.00	36.00
16 x 1¾ x 1½	⅞ "	36.00	50.00	65.00	31.00	40.00	46.00
18 x 1¾ x 1½	1 "	40.00	56.00	75.00	34.50	45.00	60.00

Snatch Blocks

Wood Shell Drop Link

Steel Shell Drop Link

Size Sheave, inches	For Dia. Rope, inches	Length Shell, inches	Iron Bushed, each	Phos. Bronze Bushed, each
3 x 1⅛ x ½	⅞	6	$ 4.00	$ 5.25
3½ x 1¼ x ½	⅞	7	4.75	6.00
4½ x 1⅜ x ⅝	1	8	5.75	7.25
5 x 1⅝ x ⅝	1⅛	9	6.75	8.50
5¾ x 1⅞ x ¾	1¼	10	8.50	11.00
6¾ x 2⅛ x ¾	1½	12	10.00	13.00
8 x 2¼ x ⅞	1¾	14	13.00	16.50
9 x 2⅝ x 1	2	16	17.00	22.00

Drop Link

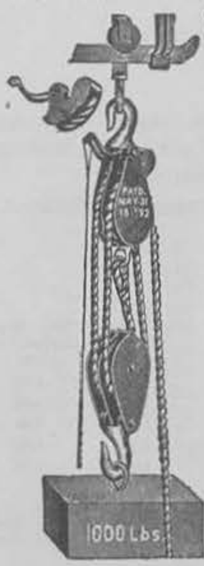
Iron Bushed Bronze Bush.

Wire Rope Snatch Blocks

Diameter Sheave inches	For Diam. Rope, inches	Iron Bush. each	Phosphor. Bronze or Metaline Bushed, Self-Lubricat. each
6	9/16	$11.00	$12.00
8	½	14.00	15.00
10	⅝	16.00	18.00
12	⅝-¾	18.00	21.00
14	¾	20.00	24.00
16	⅞	28.00	33.00
18	1	38.00	44.00
20	1¼	50.00	58.00
20	1½	60.00	68.00

Style No. 620 and 630 have semi-circular guard pressed in shell over sheave to prevent wire slipping between shell and sheave.

Star Safety Tackle Blocks



For Manila Rope

Provided with double lock, as shown in illustration, giving them greater load-holding efficiency.

They grip the load immediately when the hoisting strain is removed.

Strongly made, and it will be found that they preserve the rope better than any other safety tackle manufactured.

Nos. 1 to 6 are double blocks, 7 to 10 are fourfold.

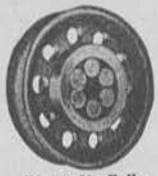
Number	Price Per Set	For Dia. Rope, Ins.	Total Cap., Lbs.	One Man Can Lift Lbs.
1	2.50	¼– ⅜	600	300
2	4.00	⅜– ½	1,000	400
3	6.00	½– ⅝	1,500	550
4	9.00	⅝– ¾	2,800	600
5	12.00	¾– ⅞	5,000	650
6	15.00	⅞–1⅛	8,000	650
7	11.00	½– ⅝	1,700	1,000
8	14.00	⅝– ¾	3,000	1,100
9	18.50	¾– ⅞	7,000	1,100
10	22.00	⅞–1⅛	10,000	1,100

Iron Sheaves

For Manila Rope

List No. 1 for Blocks for Rope Strap, Regular Mortise Wood Blocks, Contractors' Blocks, Ideal Steel Blocks, Hollow Steel Blocks, Ideal Hollow Steel Blocks

Iron Bushed



Patent Six-Roller Bushed

Star Metaline or Graphite-Bronze

Size Sheave In.	Length Shell In.	Iron or Star Graphite Bushed Each	Six or Five Roller Bushed Each	Star Metaline or Graphite-Bronze Bushed Each
1¾x ½x ⅜	3	.09	.40	...
2 x ½x ⅜	3½	.10	.42	.75
2¼x ⅝x ⅜	4	.12	.45	.80
2¾x ¾x ⅜	4½	.15	.50	.85
3 x ¾x ⅜	5	.20	.55	.90
3½x1 x ½	6	.25	.65	1.40
4¼x1 x ½	7	.30	.75	1.50
4¾x1⅛x ⅝	8	.35	1.00	1.85
5½x1⅛x ⅝	9	.45	1.10	1.95
6¼x1¼x ⅝	10	.55	1.35	2.25
7¼x1¼x ¾	11	.70	1.65	2.60
8 x1⅜x ¾	12	.90	1.90	2.95
9 x1½x ¾	13	1.20	2.40	3.25
9½x1⅝x ⅞	14	1.40	2.65	3.60
10 x1⅝x ⅞	15	1.50	2.85	3.90
11 x1¾x ⅞	16	1.70	3.20	4.90
List No. 9 for Wood, Steel and Iron Snatch Blocks				
3 x1⅛x ½	6	.30	.75	1.40
3½x1¼x ½	7	.40	.85	1.65
4½x1⅜x ⅝	8	.50	1.20	1.90
5 x1⅜x ⅝	9	.60	1.30	2.00
5¾x1⅞x ¾	10	1.20	2.40	3.00
6¾x2⅛x ¾	12	1.50	2.85	3.75
8 x2¼x ⅞	14	1.85	3.45	4.50
9 x2⅝x1	16	2.25	4.50	5.50
10 x3 x1⅛	18	3.00	6.00	7.00
11 x3½x1¼	20	4.00	8.00	9.00
11¾x4¼x1½	22	6.50	11.50	13.00
12½x4½x1½	24	9.00	15.00	18.00

Sheaves

For Wire Rope

Illustration shows graphite bronze, self-lubricating, bushed wire rope sheave.

Also furnished iron bushed.

Dimensions			Prices	
Size Sheave inches	Thickness at Hub, inches	For Diam. Wire, inches	Iron Bushed each	Phos. Bronze Bushed, each
6 x 1 x ¾	1 1/16	⅜ and ½	$ .80	$ 1.60
8 x 1¼ x ⅞	1 3/16	½ and ⅝	1.60	2.70
10 x 1¼ x ⅞	1 5/16	⅝	2.20	3.30
12 x 1½ x 1	1 9/16	¾	3.50	4.90
14 x 1½ x 1⅛	1⅝	¾	5.30	6.80
16 x 1¾ x 1¼	2"	⅞ and 1	6.90	8.80

Iron Sheaves for Manilla Rope

Size of Sheave Inches	For Block Inches	Iron Bushed each	Phosphor. Bronze Bushed each
1¾ x ½ x ⅜	3	$ .09	
2¼ x ⅝ x ⅜	4	.12	$ .70
3 x ¾ x ⅜	5	.20	.90
3½ x 1 x ½	6	.25	1.40
4¼ x 1 x ½	7	.30	1.50
4¾ x 1⅛ x ⅝	8	.35	1.85
5½ x 1⅛ x ⅝	9	.45	1.95
6¼ x 1¼ x ⅝	10	.55	2.25
7¼ x 1¼ x ¾	11	.70	2.60
8 x 1⅜ x ¾	12	.90	2.95
9 x 1½ x ¾	13	1.20	3.25
9½ x 1⅝ x ⅞	14	1.40	3.60
10 x 1⅝ x ⅞	15	1.50	3.90
11 x 1¾ x ⅞	16	1.70	4.90

Well Wheels

Heavy pattern. Cast iron. Painted black. Swivel hook.

No.	8	10	12
Diam., Ins.	8	10	12
For Rope, Ins.	½	⅝	¾
Wt. Doz., Lbs.	36	54	72
Per Doz.	16.00	20.00	24.00

CLOTHES LINE PULLEYS

Cast iron; substantial frame steel axle; 5 in. wheel for wire line up to ⅜ in. diameter. Solid eye.

Dozen List

No. 163. Aluminized **$4.80**

Packed as ordered.

Wood Handle Tampers

With Cast Iron Bases

Length of handle....... 48"
Weight .... 18 lbs.
Dia. at base .... 6"

Steel Salamanders

For heating cellars, buildings, and contract work in course of construction—drying plaster and concrete; heating shops, factories, etc.

For burning paper and disposing of garbage.

A bar inserted through the two holes at the top permits the salamander to be easily moved while a hot fire is burning therein.

Standard sizes are of 1/16-inch steel, 18 inches in diameter, length of shell, 2 feet; total height 3 feet.

They are furnished with a complete set of grate bars, same as an upright boiler.

Price..................Each **$5.00**

Brick Clamps

Made of malleable iron and adjustable to handle from 4 to 12 bricks.

Buffalo Brick Clamps.....per Doz. **36.00**

Genuine Crosby Wire Rope Clips

Red U-Bolt

Perfectly balanced drop-forged steel base with high tapering wings. Correctly proportioned with plenty of steel where most needed. Spiral grooved rope channel has a slight depression at the center to lock the grip. Thoroughly galvanized, by hot dip process.

Diam. Rope In.	Each	Diam. Rope In.	Each	Diam. Rope In.	Each
1/8	.25	5/8	.55	1 5/8	3.50
3/16	.30	3/4	.65	1 3/4	5.50
1/4	.35	7/8	.75	2	7.50
5/16	.35	1	.85	2 1/4	9.50
3/8	.40	1 1/8	.95	2 1/2	11.50
7/16	.45	1 1/4	1.10	2 3/4	25.00
1/2	.45	1 3/8	1.25	3	35.00
9/16	.55	1 1/2	1.50	...	....

Wire Rope Clips

Malleable Iron Base

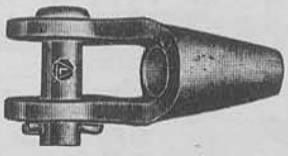
Wrought iron bolt; malleable iron plates; japanned and galvanized.

Not recommended as permanent fastenings on hoisting rope. They are easily applied and taken off, requiring no special skill.

For Dia. Rope, Ins.	Japanned Per 100	Galvanized Per 100	Standard Packages Quantity	Wt., Lbs. Pkg.
3/16	6.50	8.00	400	33
1/4	6.50	8.00	200	33
5/16	7.00	9.00	175	33
3/8	9.70	12.00	200	50
7/16	12.50	15.50	100	32
1/2	14.50	18.50	200	75
5/8	19.00	24.50	125	77
3/4	27.00	35.00	150	151
7/8	38.50	50.00	00	149
1	46.50	60.00	75	142

Open Wire Rope Sockets

Drop Forged Steel
Self Colored

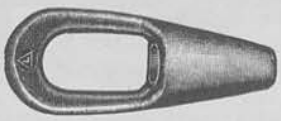


For Diam. Rope Inches	Price Each	Overall Length Inches	Length Basket Inches	Width Betw. Jaws Inches	Diam. Pin Inches	Est. Weight Each Lbs.
1/4	1.00	3 1/2	1 11/16	11/16	1/4	9/16
5/16	1.05	3 1/2	1 11/16	11/16	1/4	9/16
3/8	1.40	5	2 1/2	7/8	5/8	1 1/2
7/16	1.45	5	2 1/2	7/8	5/8	1 1/2
1/2	1.85	6	2 11/16	15/16	7/8	2 1/2
9/16	1.95	6	2 11/16	15/16	7/8	2 1/2
5/8	2.40	7	3 1/16	1 1/8	1	3 3/4
3/4	3.10	7 3/4	3 1/2	1 5/16	1 1/8	5 1/4
7/8	3.90	9	4	1 5/8	1 1/4	8 5/8
1	5.25	10 1/4	4 5/8	1 7/8	1 5/8	14
1 1/8	5.75	10 1/4	4 5/8	1 7/8	1 3/4	14 1/2
1 1/4	9.25	11 1/2	4 7/8	2 1/8	1 7/8	19
1 3/8	9.75	11 1/2	4 7/8	2 1/8	2	20
1 1/2	13.00	13 1/2	5 3/4	2 7/16	2 1/4	34
1 5/8	14.50	13 1/2	5 3/4	2 7/16	2 1/2	35
1 3/4	34.00	17 3/4	6 5/8	3	2 3/4	75
1 7/8	37.00	17 3/4	6 5/8	3	3	78
2	53.00	18 1/2	8	3 3/8	3 1/4	96
2 1/4	58.00	18 1/2	8	3 3/8	3 1/2	99

Sockets with hook or other fittings—**prices on application.**

Closed Wire Rope Sockets

Drop Forged Steel
Self Colored



For Diam. Rope Inches	Price Each	Length Overall Inches	Length Basket Inches	Max. Diam. Basket Inches	Est. Wt Each Lbs.
1/4	.70	3 3/4	1 5/8	1 11/32	1/2
5/16	.75	3 3/4	1 5/8	1 11/32	1/2
3/8	.85	5 1/4	2 1/2	1 11/16	1 1/4
7/16	.90	5 1/4	2 1/2	1 11/16	1 1/4
1/2	1.15	6	2 5/8	1 7/8	1 3/4
9/16	1.25	6	2 5/8	1 7/8	1 3/4
5/8	1.55	6 1/2	3	2 1/4	3
3/4	2.10	8	3 1/2	2 5/8	4 5/8
7/8	2.90	9 1/4	4	3	6 3/4
1	4.00	10 1/2	4 1/2	3 1/2	11
1 1/8	4.60	10 1/2	4 1/2	3 1/2	11
1 1/4	7.00	11	5	3 7/8	14 1/4
1 3/8	7.50	11	5	3 7/8	14 1/4
1 1/2	10.50	12 5/8	6	4 1/2	20 1/2
1 5/8	11.50	12 5/8	6	4 1/2	20 1/2
1 3/4	25.00	15 1/2	6 3/4	5 1/4	47 3/4
1 7/8	27.00	15 1/2	6 3/4	5 1/4	47 3/4
2	37.00	17 7/8	7 7/8	6 1/8	70 3/4
2 1/4	40.00	17 7/8	7 7/8	6 1/8	70 3/4

Sockets with hook or other fittings—**prices on application.**

Galvanized Wire Rope Thimbles

Diam. Rope Inches	Price per 100	Wt. per 100, Lbs.	Diam. Rope Inches	Price per 100	Wt. per 100, Lbs.
3/16	4.40	3	1	21.00	80
1/4	4.40	4	1 1/8	38.00	120
5/16	5.25	5	1 1/4	44.00	160
3/8	6.00	8	1 1/2	120.00	270
7/16	7.00	12	1 3/4	160.00	300
1/2	8.00	15	2	200.00	570
5/8	11.00	35	2 1/4	.....	700
3/4	13.00	50	2 1/2	.....	780
7/8	16.00	60			

Manila Rope Thimbles

Galvanized and self-colored wrought steel. The hole of the thimble usually measures one-half the outer diameter.

For Rope, Ins.	Each Galv.	O. D. Ins.	Approx. Wt. per 100, Pounds	For Rope, Ins.	Each, Galv.	O. D. Ins.	Aprox. Wt. per 100, Pounds
1/8	.05	3/4	1 1/2	1	.18	2 1/4	25
3/8	.05	7/8	2 1/2	1 1/8	.20	2 1/2	37 1/2
7/16	.06	1	6 1/4	1 1/4	.30	2 3/4	62 1/2
1/2	.08	1 1/4	6 1/2	1 3/8	.40	3	62 1/2
5/8	.10	1 1/2	12 1/2	1 1/2	.50	3 1/2	118
3/4	.12	1 3/4	12 1/2	1 3/4	1.00	4	200
7/8	.15	2	18 3/4	2	2.00	5	342

For Self Colored finish, deduct 10%.

Proof Coil Chain

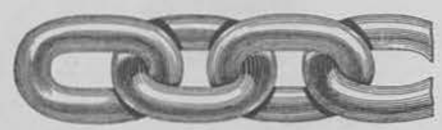
Made from open-hearth basic steel, or iron, as desired. Unless otherwise specified, steel chain, self-colored will be furnished.

Furnished in continuous lengths or in short sections. If enlarged end links, shackles, hooks, rings or other attachments are wanted, it should be clearly specified otherwise chain will be supplied without attachments.

Size In.	Size Material In.	Inside Lgth. In.	Inside Width In.	Links per Foot	Wt., Lbs. per 100 Feet	Average Breaking Test Lbs.	Proof Test Lbs.	Safe Working Load Lbs.
3/16	7/32	61/64	13/32	12½	40	2090	1045	520
1/4	9/32	1	1/2	12	70	3600	1800	900
5/16	11/32	1 7/64	1/2	10¾	105	5440	2720	1360
3/8	13/32	1 15/64	5/8	9¾	158	7440	3720	1860
7/16	15/32	1 3/8	3/4	8¾	210	10000	5000	2500
1/2	17/32	1 1/2	13/16	8	275	13200	6600	3300
9/16	19/32	1 3/4	7/8	6⅞	335	16400	8200	4100
5/8	21/32	1 7/8	1	6⅜	410	20000	10000	5000
3/4	25/32	2 1/8	1 1/8	5⅝	580	28300	14150	7075
7/8	29/32	2 1/2	1 3/8	4¾	780	38400	19200	9600
1	1 1/32	2 3/4	1 1/2	4⅜	1000	49600	24800	12400
1 1/8	1 5/32	3 1/8	1 3/4	3⅞	1270	62400	31200	15600
1 1/4	1 9/32	3 1/4	1 7/8	3¾	1560	76800	38400	19200
1 3/8	1 13/32	3 7/8	2	3⅛	1860	92000	46000	23000
1 1/2	1 17/32	4 1/8	2 1/8	2⅞	2200	108800	54400	27200

Prices upon application.

B B B Coil Chain



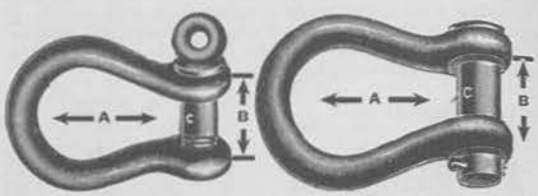
B B B grade is a close link carefully made and tested. Flexible, strong and durable. May be used for ordinary lifting. Furnished in black and bright finish.

Size Chain Inches	Size Material Inches	Inside Length Inches	Inside Width Inches	Links per Foot	Weight Pounds per 100 Feet	Average Breaking Test Pounds	Proof Test Pounds	Safe Working Load Pounds
3/16	7/32	25/32	3/8	15½	43	2600	1300	650
1/4	9/32	55/64	7/16	14	78	4500	2250	1125
5/16	11/32	1	1/2	12	115	6800	3400	1700
3/8	13/32	1 3/32	5/8	11	166	9300	4650	2325
7/16	15/32	1 7/32	11/16	9¾	220	12500	6250	3125
1/2	17/32	1 11/32	3/4	9	295	16500	8250	4125
9/16	19/32	1 9/16	3/4	7¾	350	20500	10250	5125
5/8	21/32	1 11/16	7/8	7⅛	430	25000	12500	6250
3/4	25/32	1 7/8	1	6⅜	615	35400	17700	8850
7/8	29/32	2 1/4	1 1/4	5⅜	820	48000	24000	12000
1	1 1/32	2 9/16	1 3/8	4¾	1045	62000	31000	15500
1 1/8	1 5/32	2 7/8	1 5/8	4⅛	1310	78000	39000	19500
1 1/4	1 9/32	3 1/16	1 3/4	3⅞	1600	96000	48000	24000
1 3/8	1 13/32	3 5/8	1 7/8	3¼	1930	115000	57500	28750
1 1/2	1 17/32	3 7/8	2	3⅛	2200	136000	68000	34000

Prices upon application.

Drop-Forged Steel Anchor Shackles

No. 209, Screw Pin   No. 213, Round Pin



No. 209   No. 213

Size Inches	Each Galvanized	Dimensions, Inches A	B	C	Weight Pounds per 100
*3/16	$.28	7/8	3/8	1/4	5
1/4	.28	1 1/8	1/2	5/16	12
5/16	.30	1 1/4	9/16	3/8	17½
3/8	.35	1 1/2	11/16	7/16	32
7/16	.45	1 3/4	11/16	1/2	47
1/2	.50	2	7/8	5/8	75
5/8	.80	2 3/8	1 1/16	3/4	137
3/4	.90	2 7/8	1 1/4	7/8	226
7/8	1.40	3 1/4	1 3/8	1	351
1	1.80	3 5/8	1 11/16	1 1/8	516
1 1/8	2.60	4 1/4	1 7/8	1 1/4	723
1 1/4	3.20	4 3/4	1 7/8	1 3/8	1006
1 3/8	4.40	5 1/4	2 1/4	1 1/2	1292
1 1/2	5.25	5 1/2	2 1/4	1 5/8	1706
1 3/4	10.00	7	2 7/8	2	2925
2	15.00	7 3/4	3 1/8	2 1/4	4262
2 1/4	40.00	9 1/4	3 3/4	2 1/2	5650
2 1/2	49.00	10 1/2	4 1/8	2 3/4	8350

*3/16 inch shackles furnished in No. 209 only.

Lap Links

Open end. Wrought steel galvanized.

Size In.	Per Doz.	Inside Dim. Ins.	Size In.	Per Doz.	Inside Dim. Ins.
3/16	.40	1 1/2 x 5/8	3/8	1.20	2 x 5/8
1/4	.40	1 1/2 x 5/8	7/16	1.80	2 x 3/4
5/16	.75	1 3/4 x 5/8	1/2	2.20	2 1/8 x 13/16

Chain Hooks

Grab Hooks

Round Hooks

Made of mild tough steel in most approved patterns. Can furnish in natural color or tumbled bright as preferred.

No. Grab Hook	No. Round Hook	For Chain Inches	Price per 100 Pieces
G1	S8	1/4	$15.00
G2	S9	5/16	20.00
G3	S10	3/8	30.00
G4	S11	7/16	35.00
G5	S12	1/2	45.00
G6	S13	5/8	80.00
G7	S14	3/4	170.00

Chain Repair Links

Size Cable

inches	1/4	5/16	3/8	1/2
per doz.	$1.50	2.25	3.00	3.75
inches	5/8	3/4	7/8	1
per doz.	$6.00	8.25	11.25	15.00

Turnbuckles

Drop Forged Steel
Self Colored—Hot Galvanized

Hook and Hook **Hook and Eye** **Eye and Eye**

Diameter and Takeup Inches	Price, Each Galv.	Price, Each S. C.	Diameter and Takeup Inches	Price, Each Galv.	Price, Each S. C.
¼x 4	.40	.36	1¼x12	7.25	6.00
5/16x 4½	.50	.44	18	9.00	7.50
⅜x 6	.60	.52	24	11.50	9.50
½x 6	.90	.80	36	16.00	13.00
9	1.45	1.20	1½x12	11.00	9.00
12	1.70	1.40	18	13.50	11.00
⅝x 6	1.15	.95	24	17.00	14.00
9	1.75	1.45	36	22.00	18.00
12	2.10	1.70	48	28.00	23.00
18	2.60	2.20	1¾x18	22.00	18.00
¾x 6	1.50	1.25	24	28.00	23.00
9	2.30	1.90	36	36.00	30.00
12	2.70	2.20	48	47.00	38.00
18	3.60	3.00	2 x24	42.00	35.00
24	4.20	3.50	36	50.00	40.00
⅞x12	3.40	2.80	48	62.00	50.00
18	4.30	3.60	2¼x24	60.00	50.00
24	5.25	4.40	36	68.00	55.00
1 x12	4.20	3.50	48	86.00	70.00
18	5.50	4.50	2½x24	80.00	65.00
24	6.75	5.50	36	93.00	75.00
36	8.50	7.00	48	110.00	90.00
1⅛x12	5.25	4.20	..	.....	....
18	6.75	5.50	..	.....	....
24	8.25	6.75	..	.....	....
36	10.50	8.50	..	.....	....

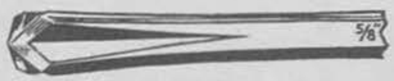
Turnbuckle with jaw end fittings, prices on application.

Turnbuckles

With Stubs—Without Stubs
Drop Forged—Self Colored

Diam. Thread Inches	Takeup Inches	Price Each	Diam. Thread Inches	Takeup Inches	Price Each
¼	4	.36	1¼	12	2.98
5/16	4½	.38	1¼	18	4.25
⅜	6	.45	1¼	24	5.95
½	6	.50	1¼	36	6.80
½	9	.75	1⅜	6	2.10
½	12	.88	1½	6	2.50
⅝	6	.60	1½	12	4.38
⅝	9	.90	1½	18	6.25
⅝	12	1.05	1½	24	8.75
⅝	18	1.50	1½	36	10.00
¾	6	.75	1½	48	15.00
¾	9	1.13	1⅝	6	3.25
¾	12	1.31	1¾	6	4.00
¾	18	1.88	1¾	18	10.00
¾	24	2.63	1¾	24	14.00
⅞	6	.90	1¾	36	16.00
⅞	12	1.58	1¾	48	24.00
⅞	18	2.25	2	6	6.25
⅞	24	3.15	2	24	21.88
1	6	1.10	2	36	25.00
1	12	1.93	2	48	37.50
1	18	2.75	2¼	6	9.25
1	24	3.85	2¼	24	32.38
1	36	4.40	2¼	36	37.00
1⅛	6	1.40	2¼	48	55.50
1⅛	12	2.45	2½	6	13.00
1⅛	18	3.50	2½	24	45.50
1⅛	24	4.90	2½	36	52.00
1⅛	36	5.60	2½	48	78.00
1¼	6	1.70	..	..	....

Star Drills No. 342



Size Hole Lgh.	Price Each	Size Hole Lgh.	Price Each
¼x 8 in.	.38	1½x12 in.	2.85
5/16x 8 in.	.40	⅜x18 in.	.60
⅜x 8 in.	.43	7/16x18 in.	.67
7/16x 8 in.	.47	½x18 in.	.75
½x 8 in.	.50	9/16x18 in.	.80
9/16x 8 in.	.55	⅝x18 in.	.88
⅝x 8 in.	.58	11/16x18 in.	.95
11/16x 8 in.	.65	¾x18 in.	1.00
¾x 8 in.	.67	13/16x18 in.	1.20
13/16x 8 in.	.75	⅞x18 in.	1.20
⅞x 8 in.	.78	15/16x18 in.	1.50
15/16x 8 in.	.88	1 x18 in.	1.55
1 x 8 in.	1.00	1⅛x18 in.	1.85
¼x12 in.	.47	1¼x18 in.	2.15
5/16x12 in.	.47	1½x18 in.	3.20
⅜x12 in.	.50	½x24 in.	1.00
7/16x12 in.	.55	9/16x24 in.	1.00
½x12 in.	.60	⅝x24 in.	1.00
9/16x12 in.	.67	11/16x24 in.	1.15
⅝x12 in.	.67	¾x24 in.	1.15
11/16x12 in.	.75	13/16x24 in.	1.30
¾x12 in.	.80	⅞x24 in.	1.30
13/16x12 in.	.88	15/16x24 in.	1.55
⅞x12 in.	1 15	1 x24 in.	1.55
15/16x12 in.	1.15	1⅛x24 in.	2.00
1 x12 in.	1.20	1¼x24 in.	2.35
1⅛x12 in.	1.50	1½x24 in.	3.40
1¼x12 in.	1.85		

Concrete Chisels No. 432

Stock Lgh.	Price Each	Stk Lgh.	Price Each
⅝x12 in.	1.10	1⅛x18 in.	2.95
¾x12 in.	1.30	1¼x18 in.	3.40
⅞x12 in.	1.50	1½x18 in.	4.45
1 x12 in.	1.75	⅞x24 in.	2.85
1⅛x12 in.	2.35	1 x24 in.	3.05
1¼x12 in.	2.65	1⅛x24 in.	3.85
1½x12 in.	3.65	1¼x24 in.	4.25
⅝x18 in.	1.35	1½x24 in.	6.10
¾x18 in.	1.50	1¼x30 in.	4.85
⅞x18 in.	2.00	1½x30 in.	6.35
1 x18 in.	2.15		

Good Will and Customers

Sincerely we hope to make each transaction with you a further bond of good will between us.

Locomotive Jack Screws

This Locomotive Jack Screw is made of only first-class quality stock. The screw is made of one piece wrought steel. It is well adapted for extra heavy duty.

Every jack screw guaranteed for quality and warranted to carry the load listed below.

Levers are not furnished with jack screws. They can be furnished if especially ordered at an additional cost.

Standard Sizes

Size Inches	Capacity Tons	Height Stand Inches	Height Over All Inches	Net Weight Pounds
1 x 6	6	6	8	6
1¼x 4	12½	4	6½	8
1¼x 6	12½	6	8½	10
1¼x 8	12½	8	10½	11
1¼x10	12½	10	12½	13
1¼x12	12½	12	14½	15
1½x 4	15	4	6¾	9
1½x 6	15	6	8¾	11
1½x 8	15	8	10¾	14
1½x10	15	10	12¾	17
1½x12	15	12	14¾	19
1½x14	15	14	16¾	21
1¾x 6	20	6	9	14
1¾x 8	20	8	11	18
1¾x10	20	10	13	20
1¾x12	20	12	15	25
1¾x14	20	14	17	29
1¾x16	20	16	19	32
2 x 5	25	5	8½	15
2 x 6	25	6	9½	18
2 x 8	25	8	11½	22
2 x10	25	10	13½	26
2 x12	25	12	15½	30
2 x14	25	14	17½	35
2 x16	25	16	19½	37
2 x18	25	18	21½	42
2½x 6	35	6	10	27
2½x 8	35	8	12	31
2½x10	35	10	14	35
2½x12	35	12	16	40
2½x14	35	14	18	43
2½x16	35	16	20	50
2½x18	35	18	22	56
2½x20	35	20	24	60
3 x 8	45	8	13	46
3 x14	45	14	19	62
3 x18	45	18	23	78
3 x24	45	24	29	103

Norton General Purpose Jacks
With Cone Bearings
10 and 15-Ton Capacity

A general purpose jack for carpenters and builders, boiler makers, truckmen, or any work that can be done with jacks.

This jack is rated for head lift. Not more than one-half the rated capacity should be lifted with the foot.

This jack is made of malleable iron and steel, and has hardened tool steel bearing for end of screw.

Style	Each	Cap. Tons	Ht. Over All In.	Rise In.	Size Base In.	Wt. Lbs.
S	$34.00	15	21⅞	11½	8½ Diam.	70
Y	44.00	15	20	8¼	7½x7½	98
N.J.	31.00	10	14	5¾	6 x7½	65
G.F.	45.00	15	22	9½	7½x7½	105

Genuine Barrett Track Jacks and Combination Trip and Lowering Jacks

Double Acting

No. 1-D

Light, easy to operate. Upkeep low.

No. 1-D is a trip jack with hook trip. Its action is quick and positive.

Nos. 1-A and 6-A have the regular trip, a simple device which assures safe, quick, easy tripping.

No. 110

The trip is out of the way where it cannot be lost or knocked off.

No. 110 is a combination trip and automatic lowering jack and can either be tripped or, by pushing reversing lever up, can be lowered notch by notch.

The operating mechanism of Nos. 1-A and 6-A jacks is identical.

Jack No.	Supersedes Jack No.	Cap. Tons	Height Inches	Raise Inches	Weight Pounds	Price Each
1-D*	1	15	22	13	60	$21.00
1-A*	1	15	22	13	58	†21.00
6-A*	6	15	28	19	73	†27.00
110‡	10	15	22	13	59	†21.00

*Double-acting, raising on upward and downward stroke.

‡Double-acting. Fitted with automatic lowering device.

†Prices shown cover square socket lever to fit lining bar. Add $1.00 to price if round socket lever and wood handle are desired. Weight of wood handle, 5 pounds.

Models BN and BW Blue Streak Hand Lift Trucks (Stuebing Line)

2500-Pound Capacity
Model BN—17½ Inches Wide
Model BW—26⅜ Inches Wide
1⅝-Inch Standard Lift

Roller Bearings.

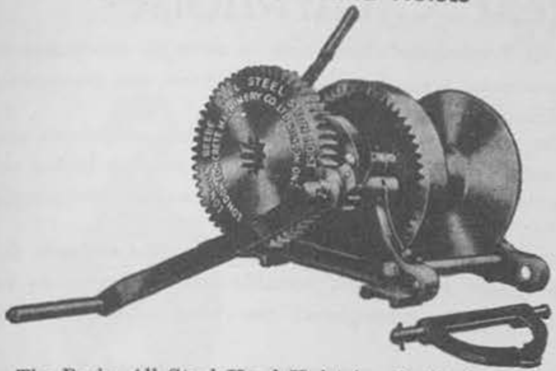
Side lift 90° arc.

Roller latch.

No.	Model BN Each	Model BW Each	Model BN No.	Model BN Each	Model BW No.	Model BW Each
6–24	$102.00	$115.00	9–36	$117.00	9–36	$130.00
6–30	102.00	115.00	9–42	122.00	9–42	135.00
6–36	107.00	120.00	9–48	127.00	9–48	140.00
6–42	112.00	125.00	9–54	132.00	9–54	145.00
6–48	117.00	130.00	9–60	137.00	9–60	150.00
7–30	107.00	120.00	11–36	131.00	9–72	160.00
7–36	112.00	125.00	11–42	136.00	11–36	144.00
7–42	117.00	130.00	11–48	141.00	11–42	149.00
7–48	122.00	135.00	11–54	146.00	11–48	154.00
7–54	127.00	140.00	11–60	151.00	11–60	164.00
7–60	132.00	145.00	11–72	161.00	11–72	174.00
9–30	112.00	125.00	.....	......	.....	......

When furnished with regular 2¼-inch high lift, add $5.00.

Beebe All Steel Hand Hoists



The Beebe All Steel Hand Hoist is suitable for a large range of hoisting or pulling—for contractors, trucks, hand derricks, gin poles, jib cranes, wrecking, loading, and installing of heavy machinery, boilers, tank erection, bridge building, pipe line work, marine ways, ship building, land clearing, transplanting forest trees; for general utility work in industrial and power plants, machine shops, mines, mills, and docks; and for emergency or intermittent hoisting or pulling where power is not available.

It weighs only 110 pounds. It is made of electric steel, has a capacity of 5 tons, and is unbreakable.

The drum is 5 inches in diameter by 8 inches long, and holds 160 feet of ⅝-inch, 250 feet of ½-inch, or 445 feet of ⅜-inch cable.

With the crank inserted in the opening in the large gear wheel, it has a gear ratio of 4 to 1 for rapid lifting up to 1500 pounds. With the crank as shown in illustration, it has a gear ratio of 24 to 1 for lifting loads up to 5 tons.

Steel Truck Barrels

Steel shop barrels may be had with malleable iron trunnions to accommodate this steel truck. Barrel and truck are independent of each other. Prices upon application.

Steel Shop and Foundry Barrels

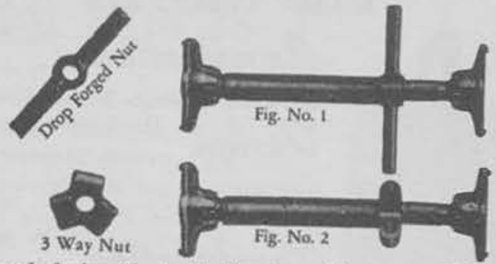
This barrel is made of black sheet steel or galvanized. Furnished welded watertight when desired. Painted black unless otherwise specified.

Has a hem around the top and bottom edges. Shell and reinforcing folds being integral, maximum strength and rigidity is placed where it is most needed. Hem is lapped at the joint and secured by 2 rivets, making the top reinforcing continuous.

Edges are all smooth, preventing cutting the hands or damaging the floors.

Has a flanged bottom riveted in. Can attach handles if desired.

Duff Extensible Steel Trench Braces



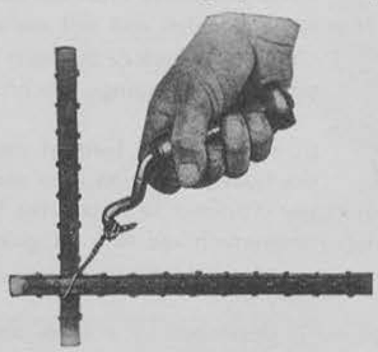
Regularly furnished with drop forged lever nut (Fig. No. 1) but can be furnished with 3-way nut (Fig. No. 2) if desired. Drop forged lever nut provides great strength and safeguards against bending or breaking. The 3-way nut is advantageous when working in close quarters. Unless otherwise specified, drop forged lever nut is furnished.

Ball and socket joint at each end permits easy adjustment to any angle. Lugs on face of each shoe sink deeply into the sheeting and hold firmly regardless of sliding or unevenness of trench. They are easily adapted to any width trench by using longer or shorter lengths of pipe.

No.	Per Dozen	Pipe and Screw Diam. Inches	Length of Brace Closed Inches	Length of Screw Inches	Safe Extension of Screw Inches	Weight Pounds per Dozen
1001	**$46.00**	1½	16	10	6	180
1002	**46.00**	1½	18	12	7	200
1003	**48.00**	1½	21	14	8	212
1004	**48.00**	1½	24	14	8	221
1005	**52.00**	1½	27	16	9	240
1006	**52.00**	1½	30	16	9	247
1007	**54.00**	1½	36	18	10	273
1008	**56.00**	1½	42	18	10	300
1009	**58.00**	1½	48	18	10	325
1011	**102.00**	2	36	18	10	538
1012	**104.00**	2	42	18	10	564
1013	**106.00**	2	48	18	10	580
1014	**108.00**	2	54	18	10	608
1015	**110.00**	2	60	18	10	630

Bates Wire Ties and Tying Tools

For Tying Reinforcing Steel



Tying Concrete Reinforcing Bars with Wire Tie and Tying Tool

Bates Bar Ties are made of a special annealed, dead-soft, 16-gauge wire in sizes ranging from three to twenty-four inches in length with a loop at each end.

The tie is bent around the two pieces of reinforcing steel until the two loop ends meet. The hook on the tying tool is then inserted in the loop ends and with a few turns, the bars are securely tied.

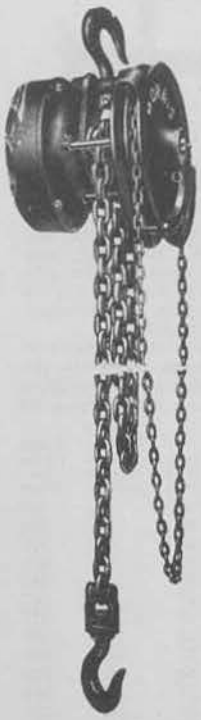
Lengths of Ties Required for Given Sizes of Rods

Size of Bars Inches	Size Tie, Inches: Round Bars	Size Tie, Inches: Corrugated Square, or Twisted	Size of Bars Inches	Size Tie, Inches: Round Bars	Size Tie, Inches: Corrugated Square, or Twisted
¼ and ¼	3	3½	½ and ⅝	5	6
¼ " ⅜	3½	4	½ " ¾	5½	6½
¼ " ½	4	4½	⅝ " ⅝	5½	6½
⅜ " ⅜	4	4½	½ " 1	6	7
¼ " ⅝	4½	5½	¾ " ¾	6	7
⅜ " ½	4½	5½	¾ " 1	7	8
⅜ " ⅝	4½	5½	⅞ " ⅞	7	8
½ " ½	4½	5½	1 " 1	8	10
⅜ " ¾	5	6	1¼ " 1¼	10	11

Bates Wire Ties are shipped in rolls of 5000. Less quantities can be furnished at an extra charge of 25 cents per 1000 for breaking roll.

Prices upon application.

The Morris Triple-gear Chain-hoist



Application Selection of the Morris Triple-gear Chain-hoist is strongly recommended for all situations necessitating frequent lifting operations, and particularly in locations which are exposed to dust, moisture, steam or chemical fumes.

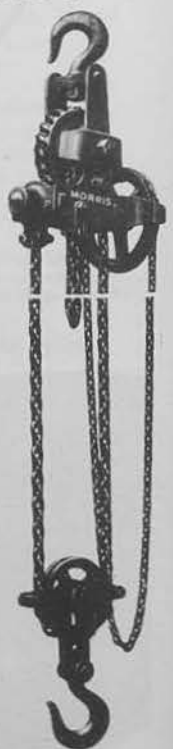
Design The hoisting mechanism consists of an epicyclic gear train with machine-cut steel pinion, planetary spur wheels and annular gear giving perfectly smooth lifting and lowering motions and developing a high mechanical efficiency. All load bearing components are mounted on high-grade ball bearings.

Construction A pressed steel cover enclosing the entire gear system affords full protection against the hard usage which portable hoists customarily fall heir to and the adoption of forged steel components throughout the load suspension line ensures a real standard of safety.

Efficiency Easy action is assured by the ample gear ratio provided and the special design of the hand-chain guide which permits the operator to work comfortably from practically any angle. Maintenance presents no problems due to the "one-shot" lubrication system employed.

Working Load tons	¼	½	1	1½	2	3	4	5
Standard Lift feet	8	8	8	8	9	10	12	12
Hoist with chains for standard lift	$70	70	90	120	140	180	220	280
Add for each additional foot of lift	$1.80	1.80	1.90	2.00	2.10	3.00	3.20	4.30
Minimum distance between hooks	1'1"	1'1"	1'4"	1'5½"	1'9"	2'6"	2'10"	3'3"
Chain overhaul per foot of lift	8	20	34	37	47	74	95	142
Number of men to lift full load	1	1	1	1	1	1	2	2
Approximate shipping weight lbs.	80	80	110	160	235	240	335	435

The Morris Worm-gear Chain-hoist



Applicaton A Morris Worm-gear Chain-hoist is the logical choice for construction work, machinery erection, and all general mill and factory maintenance purposes, because it is easily handled and will withstand a great deal of rough usage.

Construction The framework of the hoist is substantially constructed from rolled steel plates and forgings, machined to jigs before being riveted and bolted solidly together.

Efficiency By reason of the form of the gearing, the workmanship, setting and fit, the resulting motion is so easy that, as distinct from the ordinary screw hoist which relies on its low efficiency to sustain the load, this Morris hoist requires, and is provided with, a one-way automatic brake as a safeguard against reversal of the gears. This brake allows free rotation in lifting but creates sufficient resistance in lowering to keep the load in balance.

Design Its power is developed by a worm and worm-wheel of special design, the worm being of the double threaded type with a pitch angle and tooth form, evolved by long experience to produce the maximum efficiency attainable in gearing of this kind.

Working load tons	¼	½	1	1½	2	3	4	5
Standard lift feet	8	8	8	8	9	10	12	12
Hoist with chains for standard lift	$45	50	60	80	100	150	190	280
Add for each additional foot of lift	$1.75	1.80	2.60	2.70	2.80	3.00	3.20	4.80
Minimum distance between hooks	11½"	1'4"	2'3"	2'7"	2'9"	3'2"	3'6"	3'10"
Chain overhaul per foot of lift	12	18	45	49	58	81	91	107
Number of men to lift full load	1	1	1	1	2	2	3	3
Approximate shipping weight	50	80	100	120	165	220	280	420

Morris Differential Blocks

The differential chain block makes its appeal to the man who has only an extremely limited need for lifting gear—for odd jobs about the place. While it cannot compare in efficiency with the geared hoists in the Morris range, simplicity of construction and lowness of first cost are considerations which sometimes override the advantages of speedy operation and durability.

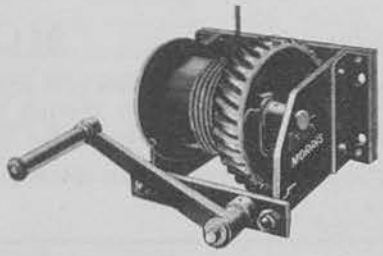
Prices

Capacity tons	½	1	1½	2	3
Standard lift feet	7	8	8½	9	10
Block with chains for standard lift	$42	56	72	90	120
Add for each additional foot of lift	$4.80	5.00	5.40	5.60	6.00
Minimum distance between hooks	1′ 9″	2′ 2″	2′ 7½″	2′ 11½″	3′ 4½″

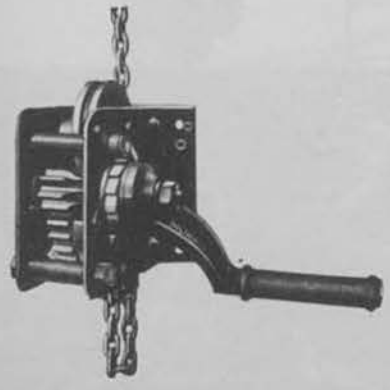
Morris Winches

These Morris winches can be attached to any convenient wall or column and the lifting rope or chain led over sheaves to the point where the lifting hook can be used to the best advantage.

Both patterns are of high grade quality being provided with machine cut hoisting gears and equipped with automatic self-sustaining brakes.



Worm-gear pattern lifting on wire rope



Spur-gear pattern lifting on chain

The working loads given in the table are for winches lifting on a single fall of rope or chain. Sizes ½ to 1 ton inclusive can also be used with double ropes or chains for twice the rated capacity.

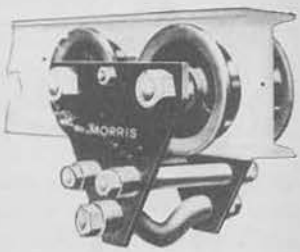
Prices

Working load tons	⅛	¼	½	¾	1
Worm-gear winch with load hook only.	—	$75	90	—	115
Rope per foot including thimble and splicing.	—	$0.35	.40	—	.50
Spur-gear winch with load hook only.	$55	60	75	85	100
Chain per foot including hook connection.	$0.70	75	.80	.85	.90

MORRIS *Plain* TROLLEY

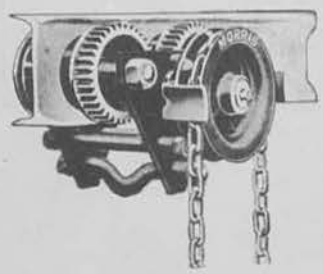
Morris Travelling Trolleys are built in Light and Heavy Duty patterns with plain or geared runners for use on flanged steel track sections and are of modern design and construction. Each size is made adjustable to suit several track widths, by means of steel spacing washers of varying thickness with which the distance between the side plates can be increased or decreased. The ranges of adjustability are given in the table below. Prices are given in the centre table.

Working load tons	½	1	1½	2	3	4	5
Standard I-beams Light Duty Pattern, Range 0	4"- 7"	5"- 8"	6"- 9"	7"-10"	—	—	—
Heavy Duty Pattern, Range 1	5"- 7"	6"- 8"	7"- 9"	8"-10"	8"-10"	9"-12"	9"-12"
Heavy Duty Pattern, Range 2	8"-10"	9"-12"	10"-15"	12"-18"	12"-18"	15"-20"	15"-20"



MORRIS *Geared* TROLLEY

The frames of the heavy duty pattern are built of rolled steel plates and forgings securely bolted together. Smooth and easy travelling is assured by the special design of the wheel treads and the high grade anti-friction bearings on which the axles are mounted. Prices are given in the following table.

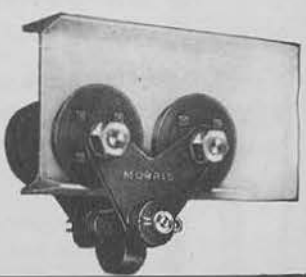


Working load tons	½	1	1½	2	3	4	5
Plain Trolley for standard range beams	$30	35	45	58	75	103	133
Geared Trolley for standard range beams	—	$70	87	105	130	168	200
Standard height ground to beam for hand chain feet	—	10	10	11	13	13	16

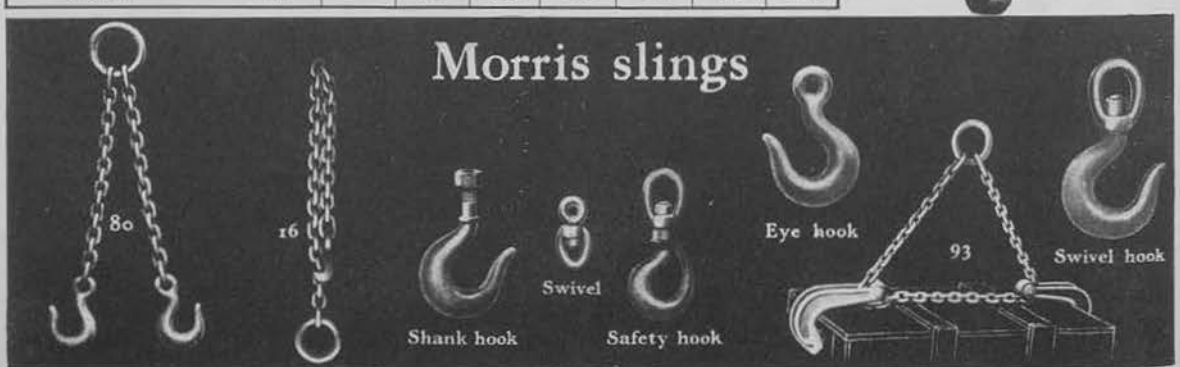
MORRIS *Light Duty* TROLLEY

For most normal purposes this style of trolley will render quite satisfactory service. The framework consists of two substantial malleable castings connected by a cross member of special design. This construction is somewhat lighter than that adopted for the heavy duty patterns. Prices are given on the centre table.

The comparative weights for both light and heavy duty patterns is given in the table below.



Working load tons	½	1	1½	2	3	4	5
Approx. shipping weight Light Duty Pattern lbs.	20	30	50	75	—	—	—
Heavy Duty Pattern Plain lbs.	40	50	80	125	135	240	250
Heavy Duty Pattern Geared lbs.	—	65	125	165	185	340	350



WOOD FRAME WET MATERIAL WHEELBARROWS

No. 18 Sterling

These barrows are narrow and deep for wheeling concrete, mortar or other wet materials. Rounded nose permits proper discharge into forms, hoppers, etc. Balanced so load is wheeled easily with minimum effort. Tray is 16 ga., lapped at corners for additional strength, securely rivetted, and reinforced at top with 5/16" rod. Handles are clear hardwood and wheel guard malleable iron. Channel steel legs with steel shoes. Sterling self-lubricating, ten-spoke wheel. Overall Width 26", Overall Height 29", Struck Capacity 3½ Cu. Ft., Maximum Capacity 4½ Cu. Ft., Weight 79 lbs.

No. 18 Sterling ..... each **$14.00**

No. 17 Sterling

This barrow has a 16 ga. tray, smaller than No. 18. Overall Width 25", Overall Height 27½", Struck Capacity 3 Cu. Ft., Maximum Capacity 4 Cu. Ft., Weight 75 lbs.

No. 17 Sterling ..... each **$13.50**

No. 19 Sterling

This barrow has a 16 ga. tray, larger than No. 18. Overall Width 27", Overall Height 30", Struck Capacity 4 Cu. Ft., Maximum Capacity 5 Cu. Ft. Weight 83 lbs.

No. 19 Sterling ..... each **$14.50**

No. 18 Crown

Nos. 17, 18 and 19 Crown are exact duplicates in every way of Nos. 17, 18 and 19 Sterling shown above, but, in place of Sterling self-lubricating wheels, Crown barrows are equipped with No. 7 Meaford wheels, running on ⅝" steel axle bolts. Steel axle bearings and our special U bolt fastening insure a true running wheel, which cannot work loose.

No. 18 Crown ..... each **$12.00**

No. 17 Crown

This barrow has a smaller tray than No. 18.

No. 17 Crown ..... each **$11.50**

No. 19 Crown

This barrow has a larger tray than No. 18.

No. 19 Crown ..... each **$12.50**

BRICK AND TILE BARROWS

No. 104 Sterling

Designed for wheeling tile, brick and similar material. The dash, platform and handles are clear hardwood. Heavy steel dash supports. Channel steel legs with shoes. Sterling self-lubricating, ten-spoke wheel.

Dash—25" wide. 17" high—Overall Width 26". Floor—25" wide, 26" long—Weight 80 lbs.

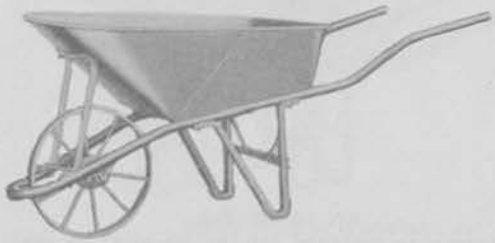
No. 104 Sterling ..... each **$15.00**

No. 104 Crown

This barrow is an exact duplicate in every way of No. 104 Sterling, but has a No. 7 Meaford wheel instead of the Sterling self-lubricating wheel.

No. 104 Crown ..... each **$13.00**

ALL-STEEL WET MATERIAL WHEELBARROWS



No. 8 Sterling Tubular

These barrows, designed for handling concrete, fill many industrial needs for wheeling of other wet materials difficult to confine. Balanced so load is wheeled easily with minimum effort. Tray is 16 ga., lapped at corners for additional strength, securely rivetted and reinforced at top with 5/16" rod. Channel steel legs with steel shoes. Sterling self-lubricating, ten-spoke wheel.

Overall Width 26", Overall Height 28", Struck Capacity 3½ Cu. Ft., Maximum Capacity 4½ Cu. Ft., Weight 83 lbs.

No. 8 Sterling Tubular ..... each **$14.50**

No. 7 Sterling Tubular

This barrow has a 16 ga. tray, smaller than No. 8. Overall Width 25", Overall Height 27", Struck Capacity 3 Cu. Ft., Maximum Capacity 4 Cu. Ft., Weight 80 lbs.

No. 7 Sterling Tubular ..... each **$14.00**

No. 9 Sterling Tubular

This barrow has a 16 ga. tray, larger than No. 8. Overall Width 27", Overall Height 29", Struck Capacity 4 Cu. Ft., Maximum Capacity 5 Cu. Ft., Weight 86 lbs.

No. 9 Sterling Tubular ..... each **$15.00**

No. 8 Samson Tubular

No. 7, 8 and 9 Samson are exact duplicates in every way of No. 7, 8 and 9 Sterling shown above, but, in place of Sterling self-lubricating wheels, Samson barrows are equipped with No. 7 Meaford wheels, which run on smooth steel axles, held in place by heavy malleable bearings.

No. 8 Samson Tubular ..... each **$13.00**

No. 7 Samson Tubular

This barrow has a smaller tray than No. 8.

No. 7 Samson Tubular ..... each **$12.50**

No. 9 Samson Tubular

This barrow has a larger tray than No. 8.

No. 9 Samson Tubular ..... each **$13.50**

No. 100 Sterling

Designed for discharging into mixers, bins or forms. Suitable for wet or dry material. Tray is 16 ga., reinforced at top with 5/16" rod. The handles are clear hardwood and the tray support is malleable iron. The legs are heavy channel steel with steel shoes. Sterling self-lubricating, ten-spoke wheel.

Overall Width 27½", Overall Height 28", Capacity 3½ Cu. Ft., Weight 72 lbs.

No. 100 Sterling ..... each **$14.50**

WOOD FRAME COAL BARROWS

No. 16 Sterling

This barrow is designed for the wheeling of coal or other bulky materials. Although large in size, the tray is so balanced over the wheel that it is easily handled when filled to capacity. Tray is 14-ga., reinforced at top with 5/16" rod. Heavy channel steel legs with shoes, malleable wheel guard and Sterling self-lubricating, ten-spoke wheel.

Overall Width 30", Overall Height 30", Struck Capacity 4½" Cu. Ft. Maximum Capacity 6 Cu. Ft., Weight 93 lbs.

No. 16 Sterling ..... each **$18.00**

No. 16 Crown

This barrow is an exact duplicate in every way of No. 16 Sterling, but has a No. 7 Meaford wheel instead of the Sterling self-lubricating wheel.

No. 16 Crown ..... each **$16.00**

No. 112 Sterling

This barrow is ideal for wheeling coal from the wagon to the coal-bin window. The tray is designed to extend through the ordinary width window casing and the long spout discharges quickly and cleanly. Tray is 14 ga., reinforced at top with 5/16" rod. Heavy channel steel legs with shoes, malleable wheel guard and Sterling self-lubricating, ten-spoke wheel.

Overall Width 25", Overall Height 30", Struck Capacity 5½" Cu. Ft., Weight 96 lbs.

No. 112 Sterling ..... each **$19.00**

No. 112 Crown

This barrow is an exact duplicate in every way of No. 112 Sterling, but has a No. 7 Meaford wheel instead of the Sterling self-lubricating wheel.

No. 112 Crown ..... each **$17.00**

No. 111 Sterling Tubular

This barrow is similar to No. 112 Sterling, shown above, but instead of wood handles has a frame of tubular steel similar to our other all-steel wheelbarrows. Tray is 14 ga., reinforced at top with 5/16" rod. Heavy channel steel legs with steel shoes. Sterling self-lubricating, ten-spoke wheel.

Overall Width 25", Overall Height 30", Struck Capacity 5½ Cu. Ft., Weight 102 lbs.

No. 111 Sterling Tubular ..... each **$20.00**

No. 111 Samson Tubular

This barrow is an exact duplicate in every way of No. 111 Sterling, but has a No. 7 Meaford wheel instead of the Sterling self-lubricating wheel.

No. 111 Samson Tubular ..... each **$18.50**

ALL-STEEL COAL BARROWS

No. 6 Sterling Tubular

Designed for wheeling coal, coke and other bulky materials. Although large in size, tray is so balanced over wheel that it is easily handled when filled to capacity. Tray is 14 ga., lapped at corners for additional strength, securely rivetted and reinforced at top with 5/16" rod. Channel steel legs with shoes. Sterling self-lubricating, ten-spoke wheel.

Overall Width 30", Overall Height 30", Struck Capacity 4½ Cu. Ft., Maximum Capacity 6 Cu. Ft., Weight 98 lbs.

No. 6 Sterling Tubular ..... each **$19.00**

No. 5 Sterling Tubular

This barrow has a 16 ga. tray, smaller than No. 6. Overall Width 28½", Overall Height 28½", Struck Capacity 3½ Cu. Ft., Maximum Capacity 5 Cu. Ft., Weight 85 lbs.

No. 5 Sterling Tubular ..... each **$14.50**

No. 107 Sterling Tubular (Coke)

This barrow has a 14 ga. tray, larger than No. 6. Overall Width 33", Overall Height 33", Struck Capacity 6½ Cu. Ft., Maximum Capacity 8 Cu. Ft. Weight 113 lbs.

No. 107 Sterling Tubular ..... each **$24.00**

No. 6 Samson Tubular

Nos. 5, 6 and 107 Samson are exact duplicates in every way of Nos. 5, 6 and 107 Sterling, shown above, but, in place of Sterling self-lubricating wheels, Samson barrows are equipped with No. 7 Meaford wheels, which run on smooth axles, held in place by heavy malleable bearings.

No. 6 Samson Tubular ..... each **$17.50**

No. 5 Samson Tubular

This barrow has a smaller tray than No. 6.

No. 5 Samson Tubular ..... each **$13.00**

No. 107 Samson Tubular (Coke)

This barrow has a larger tray than No. 6.

No. 107 Samson Tubular ..... each **$22.50**

No. 115 Sterling Heavy-Duty Tubular

Intended for service where the ordinary wheelbarrow will not stand up. Trays are 14 ga. supported by a 3/16" steel platform, which covers entire bottom and extends nearly to top at front. Wheels have double tire giving total tire thickness of ¾". Frames made of extra heavy steel pipe to stand roughest usage. Channel steel legs with shoes. Sterling self-lubricating, ten-spoke wheel.

Overall Width 27", Overall Height 26", Struck Capacity 3 Cu. Ft., Maximum Capacity 4 Cu. Ft., Weight 130 lbs.

No. 115 Sterling Tubular ..... each **$26.00**

WOOD FRAME DRY MATERIAL WHEELBARROWS

No. 13 Sterling

The popular size for handling dry materials on construction work and for all general purpose uses. Tray is 16-ga. lapped at corners for additional strength, securely rivetted, and reinforced at top with 5/16" rod. Handles are clear hardwood and wheel guards malleable iron. Channel steel legs with steel shoes, Sterling self-lubricating, ten-spoke wheel.

Overall Width 26", Overall Height 26", Struck Capacity 2½ Cu. Ft., Maximum Capacity 3½ Cu. Ft., Weight 72 lbs.

No. 13 Sterling ..... each **$13.00**

No. 14 Sterling

This barrow has a 16 ga. tray, larger than No. 13. Overall Width 27", Overall Height 27", Struck Capacity 3 Cu. Ft., Maximum Capacity 4 Cu. Ft., Weight 75 lbs.

No. 14 Sterling ..... each **$13.50**

No. 13 Crown

Nos. 13 and 14 Crown are exact duplicates in every way of Nos. 13 and 14 Sterling shown above, but, in place of Sterling self-lubricating wheels, are equipped with No. 7 Meaford wheels, running on ⅝" steel axle bolts. Steel axle bearings and special U bolt fastening insure true running wheel.

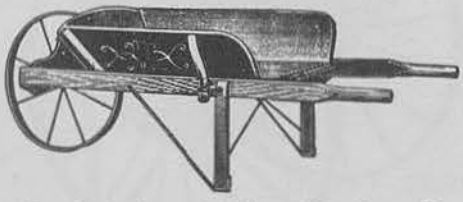
No. 13 Crown ..... each **$11.00**

No. 14 Crown

This barrow has a larger tray than No. 13.

No. 14 Crown ..... each **$11.50**

FARM & GARDEN BARROWS



Built of selected materials with clear Hardwood Frames, securely braced and bolted. Steel Leg Braces pass under Legs and form wearing Shoes which protect Legs from wear and eliminate danger of splitting. Attractively painted a brilliant red. No. 6 Meaford wheel.

Dimensions: Dash 11", Sides 9½", Tail board (on Stationary Side barrow) 6", Box 22" long, 20" wide. Overall Width 32", Weight 65 lbs.

Farm & Garden Barrow—Stationary Sides..each **$10.00**

Farm & Garden Barrow—Removable Sides..each **$10.00**

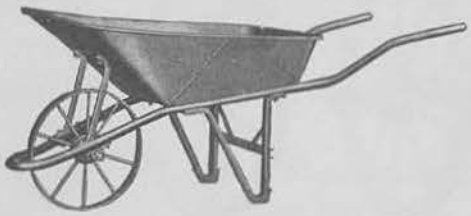
CITY GARDEN BARROW

Similar to the above, but smaller. Just right for work on lawn or in garden, small enough to store away in garage. Built of selected materials, clear Hardwood Frame well-braced and bolted. Painted a brilliant red. No. 1 Meaford wheel.

Dimensions: Dash 9", Sides 7¾", Box 25" long, 18" wide. Overall Width 24", Weight 36 lbs.

City Garden Barrow ..... each **$8.00**

ALL-STEEL DRY MATERIAL WHEELBARROWS



No. 3 Sterling Tubular

The type and size in most common demand. Ruggedly built, suitable for hardest service in industrials, construction, etc., wherever steel handled barrows are used. Intended for dry materials. Tray is 16 ga., lapped at corners for additional strength, securely rivetted, and reinforced at top with 5/16" rod. Channel steel legs with steel shoes. Sterling self-lubricating ten-spoke wheel.

Overall Width 26", Overall Height 25", Struck Capacity 2½ Cu. Ft., Maximum Capacity 3½ Cu. Ft., Weight 76 lbs.

No. 3 Sterling Tubular ..... each **$13.50**

No. 2 Sterling Tubular

This barrow has an 18 ga. tray, smaller than No. 3. Overall Width 24", Overall Height 24", Struck Capacity 2 Cu. Ft., Maximum Capacity 3 Cu. Ft., Weight 70 lbs.

No. 2 Sterling Tubular ..... each **$12.50**

No. 4 Sterling Tubular

This barrow has a 16 ga. tray, larger than No. 3. Overall Width 27", Overall Height 25½" Struck Capacity 3 Cu. Ft. Maximum Capacity 4 Cu. Ft., Weight 79 lbs.

No. 4 Sterling Tubular ..... each **$14.00**

No. 3 Samson Tubular

Nos. 2, 3 and 4 Samson are exact duplicates in every way of No. 2, 3 and 4 Sterling, shown above, but, in place of Sterling self-lubricating wheels. Samson barrows are equipped with Meaford wheels. (No. 7 Wheel on Nos. 3 and 4, and No. 2 Wheel on No. 2), which run on smooth steel axles, held in place by heavy malleable bearings.

No. 3 Samson Tubular ..... each **$12.00**

No. 2 Samson Tubular

This barrow has a smaller tray than No. 3.

No. 2 Samson Tubular..... each **$11.00**

No. 4 Samson Tubular

This barrow has a larger tray than No. 3.

No. 4 Samson Tubular ..... each **$12.50**

New Comet

A lower priced dry material, general purpose barrow. Tray is 18 ga. Frames of selected hardwood. Equipped with No. 1 Meaford wheel.

Overall Width 25½", Overall Height 22", Struck Capacity 2 Cu. Ft., Maximum Capacity 3 Cu. Ft., Weight 50 lbs.

New Comet ..... each **$8.50**

WHEELBARROW WHEELS

Fig. 1

Fig. 2

Fig. 3

Sterling Wheelbarrow Wheels (Fig. 1) are unlike any other make of wheel. Pre-lubricated fibre bearings in hub contain sufficient oil to keep shaft well lubricated for life of wheel. As a result Sterling wheel is as easy-running and more trouble-free than a roller-bearing wheel. Wheel has ten spokes instead of the usual eight, which shortens distance between spokes and strengthens wheel accordingly. Spokes are held in tire by shoulder on inner and head on outer side, and cannot work loose.

No.	Dia.	Face	Tire	Spokes	Axle	Wt.	Price each
2	16"	1½"	⅜"	10-7/16"	⅝"	17 lbs.	$4.50
5	16"	2"	¾"	10-7/16"	⅝"	28 lbs.	6.50

Meaford Wheelbarrow Wheels (Fig. 2) are made of high quality steel, have eight spokes held securely in the tire by a head on the outer and a shoulder on the inner side and cannot work loose. Hubs are heavy and made of specially hardened grey iron; insuring long service with little wear.

No.	Dia.	Face	Tire	Spokes	Axle	Wt.	Price each
1	16"	1½"	5/16"	8-⅜"	½"	12 lbs.	$2.50
2	16"	1½"	5/16"	8-⅜"	⅝"	11½ lbs.	2.50
6	19"	2"	¼"	8-7/16"	¾" 14" long	19 lbs.	3.00
7	16"	1½"	⅜"	8-½"	⅝"	16 lbs.	2.80

Pneumatic-tired Wheelbarrow Wheels (Fig. 3) move loads faster with less effort, save floors, lawns and man-power, and eliminate shocks and jolts. These are two-ply tires with inner tube, 16" x 4.00, and carry load of 450 lbs. with 35 lbs. of air. Supplied with Sterling self-lubricating bearings for use on all Sterling barrows, or with plain bearings for use on all Crown & Samson barrows. Weight 12½ lbs.

No. 30 Wheelbarrow Wheel with Sterling Self-Lubricating Bearings ....each $15.00
No. 30 ditto, with plain bearings ....each 13.00

To find price of barrows equipped with No. 30 Wheels, add to price of barrow the difference between price of wheel regularly used and price of No. 30 Wheel.

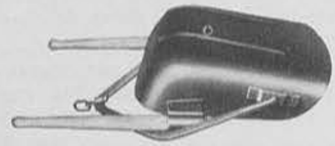
WHEELBARROW TRAYS

Our trays are riveted (not pressed), which method insures uniform thickness of steel throughout, with double thickness at corners, where wear is heaviest. Consequently they are heavier than pressed trays and are also more durable. Trays are reinforced at top with a continuous 5/16 inch rod which is smoothly rolled and tightly crimped into the edge.

Number	Gauge Steel	Length at top	Width at top	Front Slope	Rear Slope	Struck Cap'y Cu.Ft.	Max. Cap'y Cu.Ft.	Wt. Lbs.	Price ea.
2-Comet	18	33"	25"	15"	5"	2	3	20	$5.00
3-13	16	35"	26"	17½"	6½"	2½	3½	26	5.50
4-14	16	36"	27"	19 "	7½"	3	4	29	6.00
5	16	40½"	28½"	23 "	8 "	3½	5	35	6.50
6-16	14	43"	30"	24½"	11 "	4½	6	46	11.00
7-17	16	37"	25"	20 "	8½"	3	4	29	6.00
8-18	16	38"	26"	21½"	9½"	3½	4½	33	6.50
9-19	16	40½"	26½"	23 "	10½"	4	5	37	7.00
107	14	48"	33"	29½"	13½"	6½	8	60	15.00
111-112	14	47½"	23½"	30 "	8½"	5½	—	50	13.00
115	14	36"	27"	19 "	7½"	3	4	35	7.50

PRESSED STEEL DRAG SCRAPERS

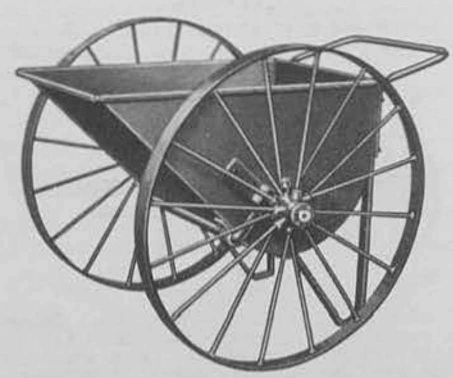
Our Scrapers are stamped from a single sheet of extra hard steel plate and are of seamless construction. The Bails are of special steel, extra heavy, fitted with perfect working swivels. The Handles are of selected hardwood, extra strong. Our Scrapers are supplied regularly with handles on top, but side handles, runners or bottom plates can be supplied if so ordered.


Runners on Bottom

Name & Number	Approx. Cap. Cu. Ft.	Top of Bk. to Cut. Edge	W'th	Greatest D'th	Plain Btm. Wt.	With Runners Weight	With Dbl. Btm. Wt.	Price Each plain bottom
No. 1 Meaford	7	34"	32"	10"	98 lbs.	105 lbs.	112 lbs.	$14.50
No. 2 "	5	32½"	29"	9½"	91 "	98 "	105 "	14.00
No. 1 Ontario	7	34"	32"	10"	93 "	100 "	107 "	14.00
No. 2 "	5	32½"	29"	9½"	85 "	92 "	99 "	13.50
No. 3 "	3	31"	25"	10¾"	74 "	81 "	88 "	13.10
No. 0 Ox Scraper	10	36"	35"	11"	125 "	135 "		34.00
No. 00 " "	13	41"	38"	13½"	175 "	190 "		48.00

Extra for Runners ....pr $1.00
Extra for Double Bottoms ....each 3.00

CONCRETE CARTS



A well-built, rugged, medium priced cart. The under-slung axle is 1¼" cold rolled steel, of a special analysis. The tray is 14 ga., reinforced with a ½" rod, rolled into the top edge, the inside of the tray being perfectly clear of obstructions, permitting quick and clean discharge. The wheels, which are 36" diameter, have 2" x ⅜" tires, 16—½" round spokes, heavy grey iron hubs 6" long, and grease cups. Roller Bearings extra.

Overall Width 38½", Overall Height 36", Struck Capacity 6 Cu. Ft., Weight 210 lbs.

No. 36 Sparton ....each $40.00
Extra for Roller Bearings ....(net) 4.00

DURO HOT GALVANIZED WARE

"DURABLE AS THE PYRAMIDS"

CONTRACTORS' HEAVY CEMENT PAIL

Heavy raised bottom with convex centre and deep rim. Top is reinforced with 1¾" band of 13 gauge steel rivetted under bead and formed into indestructible ears. Bails are made of $\frac{5}{16}$" galvanized iron rod.

No.	Imperial Capacity Quarts	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per doz.
130	13	12"	9⅝"	11"	70 lbs.	**$20.60**

HEAVY FLARING PAIL

Flaring pattern 14-in. diameter. Made from heavy sheet. Heavy steel ears. Convex bottom with deep rim. Top rim reinforced with heavy wire.

Heavy wire bail with varnished wood grip.

No.	Imperial Capacity Quarts	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per doz.
156	14	14"	9⅛"	10"	51 lbs.	**$13.65**

HEAVY FLARING STOCK PAIL

Flaring pattern, 14" dia. Made from heavy sheets. Heavy wire ears rivetted to body. Extra heavy galvanized wire bail. Convex bottom with deep rim. Top rim reinforced with heavy wire.

No.	Imperial Capacity Quarts	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per doz.
166	14	14"	9⅛"	10"	53 lbs.	**$15.25**

FLARING PAILS

Flaring, English Pattern, with 1" rim. Half Round Handles.

No.	Imperial Capacity Quarts	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per doz.
112	9	12"	7¾"	9½"	36½ lbs.	**$8.20**
113	12	13"	8⅞"	10⅜"	42¼ lbs.	**9.90**
114	14	14"	9½"	10⅞"	51½ lbs.	**11.45**

HEAVY DUTY PAIL

Heavy raised bottom with convex centre and deep rim. Heavy steel wire ears rivetted to top. Bails are made of ¼" galvanized iron rod. Deep rim reinforced with heavy wire.

No.	Imperial Capacity Quarts	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per doz.
118	10½	11¾"	9 "	9¾"	42 lbs.	**$11.90**
120	13	12 "	9½"	10½"	48 lbs.	**13.60**

FIRE PAILS

With Round Bottom

No. 72 Plain Stencilled "Fire"

No. 73 Red Japanned Stencilled "Fire".

No.	Imperial Capacity Quarts	Diam. Top	Height without Bottom	Weight per doz.	Per doz.
72	10½	11¼"	10"	36 lbs.	**$15.90**
73	10½	11¼"	10"	36 lbs	**17.70**

DURO HOT GALVANIZED WARE

"DURABLE AS THE PYRAMIDS"

1 GAL. CORRUGATED SQUAT OIL CAN

Shipping weight per doz. 22 lbs.
Per doz. **$8.95**

CORRUGATED OIL CANS with Spout

Size	Standard Package per carton	Shipping Weight per doz.
1 Gal. (med.)	½ doz.	23 lbs.
Per doz.		**$8.95**
2 Gal.	¼ doz.	35 lbs.
Per doz.		**13.00**
5 Gal.	¼ doz.	65 lbs.
Per doz.		**21.85**

5 GAL. CORRUGATED "NOXALL" OIL CAN

(Lay down with tap)

Shipping Weight per dozen, 76 lbs.

Per doz. **$25.90**

BUSHEL BASKETS

Corrugated Bottom. Solid easy grip handles.

Sides reinforced by four sturdy beads.

No.	Diam. Top	Height	Weight per Doz.	Per doz.
70	18"	11"	66 lbs.	**$15.45**

CORRUGATED HEAVY ASH CAN

Heavy steel barrel handles. Reinforced at top and bottom with a heavy 10 gauge ribbed steel band, 2 inches wide, securely attached with a continuous series of spot welds. Can absolutely water tight with easy fitting cover.

No.	Imperial Capacity Gallons	Diam. Top	Diam. Bottom	Height less cover	Wgt. per doz. with Covers	Per doz.
365	13½	15¼"	15"	24¾"	188 lbs.	**$57.60**

CORRUGATED GARBAGE CANS With Self-locking Cover

Cover Lock Patented 1934

No.	Imperial Capacity Gallons	Diam. Top	Diam. Bottom	Height	Weight per doz. with Cover	Per doz.
10	5	12¼"	12 "	13⅝"	76 lbs.	**$17.60**
20	7	13¾"	13⅜"	14½"	94 lbs.	**23.70**
30	9½	15¼"	14¾"	16⅞"	116 lbs.	**29.05**

Straight side with Bail Handle. Seamless Covers. Extra deep.

All "DURO" Garbage Cans and Ash Cans are made with heavy corrugations to give maximum strength.

DURO HOT GALVANIZED WARE

"DURABLE AS THE PYRAMIDS"

SPRINKLERS
With swing handle

CARRY AND POUR WITHOUT CHANGING GRIP

Keep one where your gardening customers can pick it up and feel its fine balance

Made in a five-size range.

Number	Imp. Qt. Cap.	Shipping wt. per doz.	Per Doz.
306	4 ½	29 lb.	**$15.20**
308	6 ¼	36 lb.	**16.70**
310	7 ¾	43 lb.	**17.80**
314	10 ½	50 lb.	**21.45**
316	12 ¼	60 lb.	**25.26**

Seams sealed with molten zinc.
Brass plated, gaily painted roses.

STRAIGHT BUCKETS

With Round Handles, made of Galvanized Wire. Roll swedged for added strength.

No.	Capacity Quarts	Diam. top	Diam. Bottom	Height	Weight per doz.	per doz.
012	8	10 ⅝"	8 ⅜"	8 ⅜"	22 lbs.	**$4.10**
014	10 ½	11 ¼"	9 ⅛"	9 ⅝"	25 ½ "	**4.80**
016	13	11 ⅞"	9 ⅝"	11 "	32 "	**5.90**

BUSHEL BASKET

Deep Corrugated Bottom insures added strength.
Easy Grip Solid Side Handles.
Sides reinforced by four sturdy beads.

No.	Diam. Top	Height	Weight per doz.	Per doz.
700	18"	11"	56 lbs.	**$11.00**

SQUARE TUB

No.	Imperial Capacity Gallons	Diam.	Height	Weight per Doz.	per Doz.
42	11 ½	20"	11 ⅛"	82 lbs.	**$17.30**

WASH TUBS

No.	Imperial Capacity Gallons	Diam. Top	Diam. Bottom	Height	Weight per doz.	Per Doz.
0	7	18"	15 ¾"	9 ½"	52 lbs.	**$12.15**
01	10	20 ¼"	16 ¾"	11"	66 ½ "	**13.60**
02	12 ¾	23 ⅛"	18 ⅞"	11"	89 "	**15.20**
03	15	25 ¼"	20 ¾"	11"	90 ½ "	**17.25**

CORRUGATED GARBAGE CANS
Seamless Self Locking Covers

No.	Imperial Capacity Gallons	Diam. Top	Diam. Bottom	Height	Weight per doz. with covers	
001	4 ½	12 ¼"	10 ¾"	13 ⅝"	52 lbs.	**$10.98**
002	6 ½	13 ¾"	12 "	14 ½"	62 "	**13.10**
003	9	15 ¼"	13 ⅜"	16 ⅞"	81 ½ "	**15.20**

Slightly tapered. Bail handle.

Savory Water Pails

Extra Heavy—Galvanized

Heavy gage formed ears riveted on. Large roll reinforced with heavy wire. Heavy galvanized wire bails.

No.	Per Doz.	Size Ins.	Capacity Qts.	Wt., Lbs. per ½ Doz.
4700	14.00	11¾x 9¾	12	25
4800	14.80	12 x10¼	14	26½
4900	17.00	12¾x10¼	16	28

No. 6800 Savory Cement or Contractors' Pails

Extra Heavy—Galvanized

Malleable forked ears; four stout rivets in each. Bails made of ⅜-inch iron rod, galvanized. Large rim top reinforced with heavy wire. Flat bottom extra deep chime strengthened by two broad bands firmly riveted at right angles.

No.	Per Doz.	Size Ins.	Capacity Qts.	Wt., Lbs. per ½ Doz.
6800	26.60	11¾x10⅝	14	43

Savory Water Pails

Heavy—Galvanized

Deep chime bottom. Heavy wrought ears riveted to body. Galvanized wire bail.

No.	Per Doz.	Size Ins.	Capacity Qts.	Wt., Lbs. per Doz.
1310	11.90	10⅝x 8¾	10	36
1312	12.50	11 x 9½	12	43
1314	13.30	11⅞x10⅝	14	46
1316	14.80	12½x11⅜	16	52

Savory Roller Ash Cans

Equipped with four double wheeled casters that are held in the socket by a cotter pin.

Hot-galvanized, leak proof, rust proof. Extra heavy corrugated body. Deep chime bottom with convex stiffening panel, double seamed to body. ⅜-inch rod handles, attached with riveted clips. Top reinforced with ⅞-inch butt-welded, steel tube.

Without Cover

No.	Per Dozen	Inside Diameter Inches	Height of Body Inches	Height With Casters Inches	Capacity Gallons	Weight Each Pounds
1820	147.50	18	26	28½	26	37
2022	159.50	20	26	28½	32	41½
1826	186.60	18	26½	29½	28	38

With Cover

No.	Per Dozen	Inside Diameter Inches	Height of Body Inches	Height With Casters Inches	Capacity Gallons	Weight Each Pounds
1820	161.00	18	29¼	31¾	26	40¼
2022	174.65	20	29½	32	32	45
1826	199.80	18	26½	29½	28	38

Justrite Safety Cans

For Factory, Mathine Shop and Garage

For the Using and Storing of Explosive Inflammable Liquids

This can is non-explosive. It is approved, inspected and labeled by National Board of Fire Underwriters, Inc., and Factories Mutual Fire Insurance Companies.

Body is made of No. 24 gage heavily coated lead plate, double seamed and soldered; finished in baked red enamel.

No special funnels are required; sizes ½ to 5 gallon can be filled directly from standard hose nozzle at any filling station. Rounded dome, prevents accumulation of dust, dirt and liquid. Easy to carry. Accurate pouring. Natural hand grip.

Capacity....	1 Pt.	1 Qt.	½ Gal.	1 Gal.	2 Gal.	3 Gal.	5 Gal.
Each........	$2.00	2.25	2.50	3.00	3.50	4.50	5.50

Justrite Oily Waste Cans

Fig. 4753

Each can bears the labeled service of the National Board of Fire Underwriters and Factories Mutual Fire Insurance Companies.

Made of 24-gauge galvanized steel. Legs and handle made of ⅛-inch iron. Opens with foot, closes automatically. No springs to get out of order. The patented foot lever renders opening can so easy that it obviates all desire to block the cover open. Size given is exclusive of legs.

No.	Size Inches	Capacity Gallons	Price Each
1	11¾x13	6	$4.00
2	12½x14	8	4.50
3	13½x15	10	5.00

Solar Self-Closing Receptacles

With their many sizes, finishes and types of inner containers, Solars can be adapted to almost any use.

Each equipped with an inner container best adapted to its size and probable use.

Often, another of the four Solar inner containers will be found better suited for the work in hand than the one furnished with the receptacle.

Galvanized containers furnished for any size at special price.

FUNNELS

Trade No.	½ Pt.	¾ Pt.	1 Pt.	1 Qt.	2 Qt.	4 Qt.
Diam. Top, inches	3¼	4	4⅞	5⅞	7⅜	9¼
Height Overall, inches	3¾	4¾	5⅝	6⅝	8	9⅞
Standard Package, Doz.	12	6	6	3	3	3

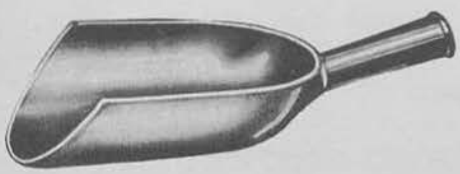
IMPERIAL LIQUID MEASURES

Government Stamped

Trade No.	½ Pt.	1 Pt.	1 Qt.	½ Gal.	1 Gal.
Diam., inches	2½	3⅛	4¼	5⅛	6⅛
Height, inches	3⅝	5	5½	7⅛	9⅞
Standard Package, Doz.	1	1	1	½	½

GROCERS' SCOOPS

Regular



Trade No.	2	3	4
Width of Mouth, inches	4¾	5⅜	6
Length of Mouth, inches	6¾	7⅜	9¼
Length Overall, inches	10¼	11	13⅛
Standard Package, Doz.	½	½	½

Covered

Trade No.	20	30	40
Width of Mouth, inches	4¾	5⅜	6
Length of Mouth, inches	6¾	7⅜	9¼
Length Overall, inches	10¼	11	13⅛
Standard Package, Doz.	⅓	⅓	⅓

Oil or Varnish Cans

Made of heavy tin, with 1 inch screw cap. All seams soldered.

Capacity 1, 2 and 4 gallons.

Red Hoop Wood Jacketed Oil Cans

Regular Cone Top Style

All are fitted for metal seal, closing nozzle absolutely tight and saving cost of corks.

Can be fitted with screw cap at slight additional cost.

Size 5 Gallons.

PAINTERS' SCRAPERS

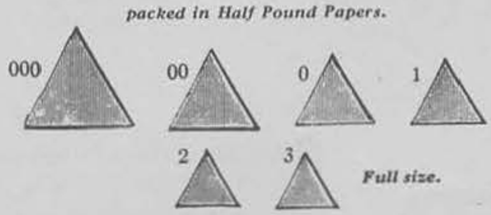
3″ bevel blade, tapered rosewood handle rivetted to blade by three copper rivets. Length of blade, 4¼″. One dozen
Per dozen.......................................**List $3.00**

PUTTY KNIVES

No. 929. "**National**"—3⅝″ stiff blade, square end. Width 1⅛″. Round varnished wood handle. 2 dozen in a box.
Per dozen.......................................**List $3.00**

ZINC COATED GLAZIERS' POINTS

packed in Half Pound Papers.



Full size.

Prices on Application.

Prussian Blue

For locating high spots or worn parts on metal surfaces. Used extensively in fitting shaft bearings, seating valves, etc.

Made from the highest quality of material and contains no grit or other foreign substance.

Single tube is ½x4 inches; double tubes, ¾x4 inches.

Single Tubes.......................................each **$.15**
Double Tubes.......................................each **.24**

SUPREME EMBURY LANTERNS

Supreme

No. 160
Cold Blast

THE leading light of the Supreme line, No. 160 meets the needs of a general purpose lantern. The new practical quart-size fount and balanced air control, which keeps the flame burning no matter what the weather, are eminent marks of Supreme accomplishment.

The No. 160 embodies all the fine points of construction of Supreme lanterns, including—automatic standing bail, always upright ready at hand—solid stormproof dome—new improved combustion with *balanced air control*—rising cone burner which makes wick trimming and lighting easy—large filler—rustless terne bottom tightly double-seamed to oil fount. A new standard of lantern value—in service and performance.

The No. 160 is also supplied with polished brass fount, a de luxe addition to a distinguished model.

SPECIFICATIONS

Burner	No. 2 C. B. Rising Cone	Globe	Nustyle Supreme
Wick	1 inch	Height, bail down	14½ inches
Fount Capacity	1 quart	Finish	Bright Tin
Burns	45 hours	Packed	½ dozen in case

WHERE long globe lanterns find favor, the No. 240 is the popular choice. Its attractiveness is enhanced by the addition of the newly designed fount of one quart oil capacity.

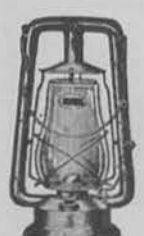
The No. 240 combines characteristic cold blast Supreme features, as—ever-standing bail—solid weatherproof dome—improved combustion with *balanced air control*—burner with rising cone, which, lifting with the globe, leaves the wick conveniently accessible for servicing and lighting—well placed oil filler—and double-seamed heavily coated terne bottom. No. 240 rates with the best in long globe cold blast lanterns.

This lantern is also available with highly polished brass fount which accentuates its fine finish.

No. 240
Cold Blast

SPECIFICATIONS

Burner	No. 2 C. B. Rising Cone	Globe	Universal Supreme
Wick	1 inch	Height, bail down	15¼ inches
Fount capacity	1 quart	Finish	Bright Tin
Burns	45 hours	Packed	½ dozen in case



No. 210
Hot Blast

THE No. 210 combines simple, yet durable, hot blast construction with moderate cost. In this type of lantern the fresh air enters at the top mixing with the hot air from the globe before reaching the burner, thus accounting for the term "hot blast."

Among its features are: full protecting globe guard wires—improved lift lug with two-way up or down positive catch—full inside globe lift—new stronger fount construction—large filler—and terne bottom double-seamed to oil fount.

With ruby globe the No. 210 finds appropriate use as contractors warning signal.

SPECIFICATIONS

Burner	No. 0 H. B.	Globe	Universal Supreme
Wick	⅝ inch	Height, bail down	13¼ inches
Fount Capacity	1 pint	Finish	Bright Tin
Burns	30 hours	Packed	1 dozen in case

Prices and Shipping Weights are shown in Price List

SUPREME EMBURY LANTERNS

LITTLE SUPREME

SUPREME features throughout account for the general use of the No. 150 where cold blast lanterns of small size are required. It gives a bright, dependable light in any kind of weather. Recent improvements are apparent in its rugged construction.

The No. 150 Little Supreme incorporates all modern lantern features, chief among which are: the automatic standing bail—solid dome of weatherproof construction—*balanced air control* combustion—rising cone burner to facilitate trimming and lighting the wick—positive locking lift catch—large and conveniently located filler—and rustless terne bottom double-seamed to oil fount.

Sturdy and compact Little Supreme construction insures a long term of service.

No. 150
Cold Blast

SPECIFICATIONS

Burner	No. 1 C. B. Rising Cone	Globe	Little Supreme
Wick	5/8 inch	Height, bail down	11 3/4 inches
Fount Capacity	1 pint	Finish	Bright Tin
Burns	30 hours	Packed	1 dozen in case

PRICE LIST

Style Number	Price per Dozen With Clear Globes	Price per Dozen With Colored Globes	Number in Case	Approx. Gross Shipping Weight per Case
COLD BLAST				
160 Supreme	$20.50	$23.00	1/2 Doz.	19 Lbs.
160 Supreme, brass fount	29.50	32.00	1/2 Doz.	19 Lbs.
240 Supreme	20.50	23.00	1/2 Doz.	20 Lbs.
240 Supreme, brass fount	29.50	32.00	1/2 Doz.	20 Lbs.
150 Little Supreme	15.00	17.50	1 Doz.	27 Lbs.
150 Little Supreme Vehicle, black enamel	26.00		1/2 Doz.	20 Lbs.
350 Little Supreme 1 qt. fount not illustrated	17.50	20.00	1/2 Doz.	15 Lbs.
HOT BLAST				
210 Supreme	13.50	16.00	1 Doz.	30 Lbs.

SUPREME LANTERN GLOBES

Style	Standard Case	Price per Case Clear	Price per Case Colored	Approx. Gross Weight Per Case
Nustyle Supreme	1 Doz.	$2.30	$ 4.85	10 Lbs.
Nustyle Supreme	3 Doz.	6.30	13.90	30 Lbs.
Universal Supreme	1 Doz.	2.30	4.85	12 Lbs.
Universal Supreme	3 Doz.	6.30	13.90	35 Lbs.
Little Supreme	1 Doz.	2.30	4.85	8 Lbs.
Little Supreme	3 Doz.	6.30	13.90	22 Lbs.

SUPREME LANTERN PARTS

Items	Standard Case	Price Per Case	Approx. Ship. Wt. Per Case
BURNERS			
No. 0 H.B.	1 Doz.	$1.75	2 Lbs.
No. 1 C.B.	1 Doz.	1.75	2 Lbs.
No. 2 C.B.	1 Doz.	2.35	2 Lbs.
No. 500	1 Doz.	2.50	2 Lbs.
FILLER CAPS			
No. 2 (Fits all lanterns)	1 Doz.	.60	1 Lb.
WICKS			
No. 1 (5/8 inch)	1 Gross	1.60	1 Lb.
No. 2 (1 inch)	1 Gross	2.30	2 Lbs.

MISCELLANEOUS				
500 Highway Lantern, yellow enamel not illustrated	19.00	21.50	1 Doz.	32 Lbs.

All lanterns furnished in bright tin finish unless otherwise indicated. Colored globes are genuine solid color ruby or green glass. Any lanterns may be furnished with red stained globes. Prices quoted upon request.

OILED CLOTHING

"TAKES THE WET OUT OF RAIN"

FISH BRAND VARSITY SLICKERS

"The Rainy Day Pal"

Stock No.	Garments	Net Price per Doz.
122.	Men's Button Slicker	$60.00
123.	Men's Buckle Slicker	63.00
166.	Boys' Button Slicker	45.00
167.	Boys' Buckle Slicker	48.00

Corduroy-lined collar—with leather strap.
Two pockets—buttons or solid brass buckles.
Half-lined.
Sizes—Men's, 36 to 46. Boys', 22 to 34X.

HATS

Stock No.	Hats	Net Price per Doz.
602.	Cape Ann Hat	$14.00
604.	Fish Hat, round rim	14.00
605.	Squam Hat	10.00
606.	Pilot Hat, turned-up rim	18.00
607.	Miners' Squam Hat, with leather	13.00
611.	Shield Soft Hat	11.00

All hats excepting 604 are So'wester style.

Hat Sizes—7¾, 7½, 7¼, 7, 6¾, 6½

Size 6½ supplied in No. 611 only.

FISH BRAND WORK CLOTHING

Fish Brand Work Clothing is made from extra heavy cloth, thoroughly waterproofed, double-ply throughout. Sizes 36 to 46.

Stock No.	Garments	Net Price per Doz.
115.	Long Coat, buckles	$63.00
114.	Medium Coat, buckles	57.00
117.	Jackets, buckles	36.00
127.	Jackets, buttons	33.00
128.	Apron Pants	33.00
1273.	Fishermen's Special Jacket	33.00
1283.	Fishermen's Special Blouse Pants	33.00

SHIELD BRAND WORK CLOTHING

Stock No.	Garments	Net Price per Doz.
211.	Slicker, buckle	$55.50
221.	Slicker, button	52.50
212.	Pommel Slicker, buckle	79.50
222.	Pommel Slicker, button	75.50
214.	Medium Coat, buckle	51.00
224.	Medium Coat, button	48.00
217.	Jackets, buckle	31.50
227.	Jackets, button	28.50
228.	Apron Pants	28.50
2282.	Fishermen's Blouse Pants	28.50
200.	Sleeves, pairs	12.00

FISH BRAND APRONS

Stock No.	Garments	Net Price per Doz.
400.	Common Barvel, double, Yellow	$15.00
402.	Tanners' Duck Apron, double	25.50
403.	Tanners' Drill Apron, double	22.50
408.	Packers' Duck Apron, with patch	18.00
440.	Common Barvel, White	16.00
430.	Shampoo Apron or Cape	13.00

GROUND SHEETS

		Net Price per Doz.
No. 720.	Unlined, 50 x 72, Black only.	$18.00

TARPAULINS—TRUCK COVERS

Made to order of Towerproof Duck of various weights Any size, Dark Brown color. Finished with grommets and ropes.

Prices and samples on request.

EXTRA SIZES AND SPECIALS

We are pleased to make to order, extra sizes, lengths or special features on any of our listed garments. Delivery, one to two weeks. Prices for extra sizes—add 20% to Net List.

BOOTS

SPORTSMEN'S
BLACK DIAMOND BRAND

ALL BLACK
LACED INSTEP
THIGH HEIGHT
ROLLED EDGE SOLE
STRONG FLEXIBLE ELASTIC UPPER
FELT INSOLES WITH SPECIAL HEEL LIFT
INSIDE GARTER TO FASTEN AT KNEE

Vacuum Pressure Cured

WADER

No.		Sizes
97	Men's WADER	6–12

The Wader is made on a deep comfortable last. It is comparatively light in weight, and can be rolled up into small space for packing.

The famous "Black Diamond" oil and grease resisting rubber compound is used in its construction.

"BLACK DIAMOND" CLOTHING

"BLACK DIAMOND" SUIT

No. 5500—Black rubber surface waterproof Suit, extra strong rubber sheeting.
Sizes—36 to 46.
Jacket—30 to 31" long.
Pants—26 to 30" long.

No. 5501—Black rubber surface waterproof Pants, reversible, double bib.
Sizes—36 to 46.
Lengths—23 to 27".

FRONTENAC
BLACK SURFACE COAT

No. 5400—Our Big Seller. Dull finish sheeting. Black Buckles.
50 inches long. Sizes 36 to 46.

VULCAN
BLACK SURFACE COAT

No. 4800—Double Coated Sheeting, Snap and Ring Fasteners. For teamsters and firemen.
47 inches long. Sizes 36 to 46.

GENERAL UTILITY
TRIUMPH BRAND

RED FOXING
BLACK UPPER

100

103

RED SOLE AND HEEL
SEMI FLARE EDGE SOLE

36 TRIUMPH

No.		Sizes
36	Men's TRIUMPH Short	6–12
103	Men's TRIUMPH Storm King	6–12
100	Men's TRIUMPH Hip	6–12

RUBBER SURFACE APRONS

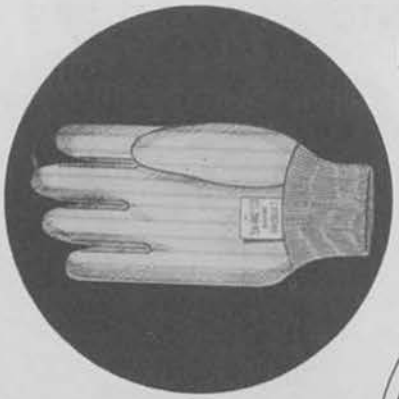
No. 5804—Black, Double Coated, medium weight. Size 45" x 36".
No. 5805—Black, Double Coated, heavy weight. Size 45" x 36".
No. 5806—Black, Single Coated, light weight. Size 45" x 36".
No. 5807—White, Single Coated, light weight. Size 45" x 36".
No. 5808—White, Double Coated, medium weight. Size 45" x 36".
No. 5814—Black, Double Coated, acid-resisting. Size 43" x 30".

WORK GLOVES
(GENERAL PURPOSE)

No. 7020—Black rubber surfaced. Medium weight.
No. 7021—Black rubber surfaced. Heavy weight.
Warm, waterproof and wind resisting.
Will outwear cotton gloves.

TA-PAT-CO
REGISTERED TRADE MARK
BRAND

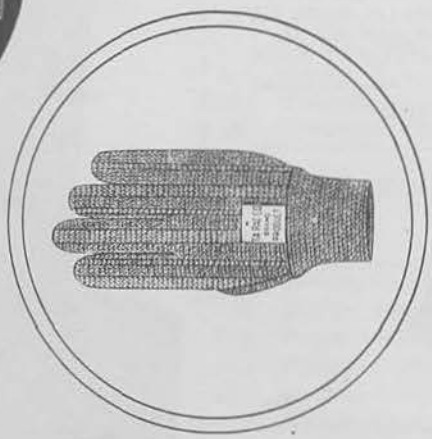
COTTON GLOVES
Large Cut
Comfortable
Fitting Sizes



MEN'S STRIPE CANVAS GLOVES
CLUTE CUT PATTERN

74 K—8 oz. Stripe, Knit Wrist
Per Dozen List $1.80

K 104—8 oz. Stripe, Knit Wrist
Per Dozen List $1.70



MEN'S BLACK AND WHITE JERSEY GLOVES

K 10—12 oz. Spec. Black and White
Per Dozen List $3.20

78 K—8½ oz. Spec. Black and White
(Extra Large)
Per Dozen List $2.40

MEN'S JERSEY GLOVES

K 19—7½ oz. Wine Brown
Per Dozen List $2.00

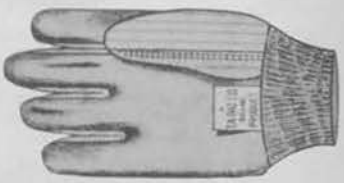
1976 K—7½ oz. Wine Brown
Per Dozen List $2.15

YOUTHS' JERSEY GLOVES

876 KC—8½ oz. Wine Brown
Per Dozen List $2.15

MEN'S RUBBERIZED GLOVES

700 K—Black Latex Rubber Coated, Extra Large, Knit Wrist
Per Dozen List $4.90



LEATHER PALM GLOVES
MEN'S KNIT WRIST

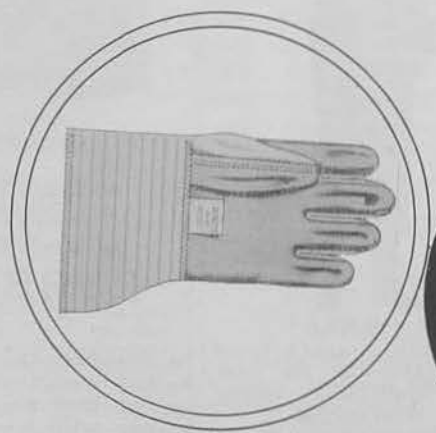
740 KL—Med. 8 oz. Stripe Unlined Palm
Per Dozen List $4.50

OUTSEAM LEATHER PALM
STRIPE BACK GLOVE

1740 KL—8 oz. Stripe, Canary Leather Palm, Knit Wrist.

Per Dozen List $5.40

This Glove is specially designed so that the wear is on the leather only and will more than double the wear of the ordinary Leather Palm Glove.

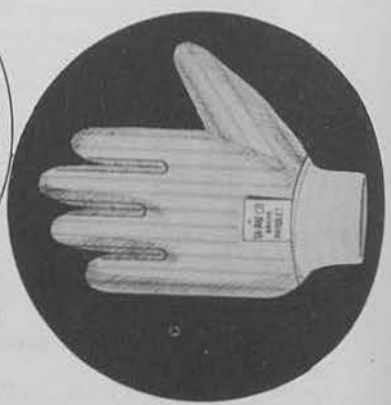


LEATHER PALM
GAUNTLET GLOVES

44 GL —Large 8 oz. White, Lined Palm.
Per Dozen List $6.00

2346 GL —Med. 8 oz. White, Lined Palm.
Per Dozen List $5.60

2740 GL —Med. 8 oz. Stripe, Unlined Palm.
Per Dozen List $5.30



REVERSIBLE
CANTON FLANNEL GLOVES
MEN'S KNIT WRIST

38 KR—12 oz. White
Per Dozen List $3.20

Brushes

Guarantee—

All our brushes are warranted to be faultless. The customer is the sole arbiter as to whether we have met the test. Brushes that are faulty will be replaced without argument.

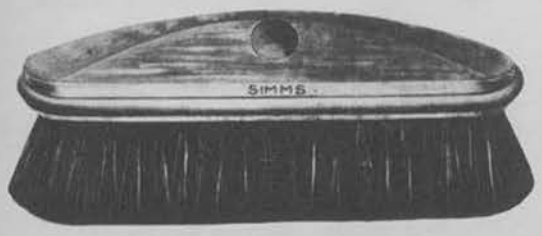
T. S. Simms and Co. Limited

H700 (1190) **WAXWING FLOOR POLISHER.**
Weighted.

No.	Size	Length Out Inches	Per Doz.
15 lb.	5½×9	⅞	$33.10
25 lb.	5½×9	⅞	51.50
Brushes only provided separately.....			11.00

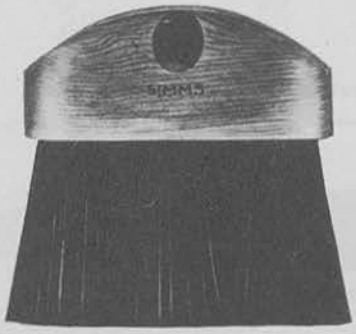
H905 (1425) **ROUND WINDOW.**

No.	Stock	Diameter	Length Out Inches	Weight Lbs	Per Doz.
5	Grey Horsehair	4¼	2⅝	15	$9.45



H920 (1430) **CAR WASHERS.**
Black Horsehair. Wire Drawn. Natural Polished Blocks.

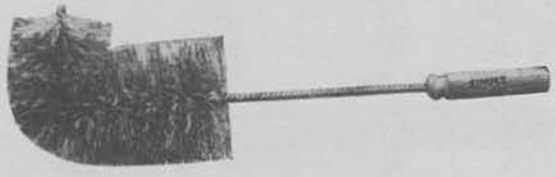
No.		Length Out Inches	Weight Lbs.	Per Doz.
344	With Bands	1¾	16½	$49.65
344	Without Bands	1¾	16½	33.10



H930 (1442) **JUNCO ROOFING.**
(MACHINE MADE)
Grey Fibre. Solid Hardwood Backs.

Knot	Weight Lbs.	Per Doz.
2	9½	$5.10
3	14	6.30

SANITARY BRUSH.



These brushes are used for cleaning the bath room bowl, the water marks from the sides of the bath tub, or for washing windows. To clean use scalding water, shake out and hang up to dry.

H1025 (L-152) **Union Fibre.** Per Doz. $3.70

H1045 (L226) **AUTO SPOKE.**

Single Type. Best Stiff Golden Fibre twisted in non-rusting wire securely adjusted to large natural finished hardwood handles. Per Doz. $5.25

H1050 (L227) **AUTO SPOKE.**

Single Type. Best Quality Black Horsehair twisted in non-rusting wire securely adjusted to large natural finished hardwood handles. Per Doz. $6.70

No. P5 THRUSH

PAINT OR VARNISH

Fine Black Bristles. Machine Chiselled.
Red Polished Handles with Wide Gold Band.
A Very Serviceable Low Priced Brush.

Retails from 10c. up.

(SET IN RUBBER)

CHISELLED—

Size	Length Out Inches	Packed Dozen	Weight Lbs.	Per Doz.
½	1½	1	⅜	$1.25
1	1⅞	1	¾	2.00
1½	1⅞	1	1¼	2.60
2	2⅛	1	1½	3.15
2½	2⅛	1	2	4.60
SQUARE TOP—				
3	2⅜	1	3	6.50
3½	2⅝	1	5¼	10.70
4	2⅞	½	5¾	14.70

No. P10 TEAL

PAINT OR VARNISH

Black Bristles, Machine Chiselled. Held Securely in Nickelled Steel Ferrules. Green Polished Beavertail Handles, Finished with Gold Band.

This is Our Second Line of Paint or Varnish Brushes.

Wrapped in "Cellophane."

Medium Priced, Retailing from 20c up

(SET IN RUBBER)

CHISELLED—

Size	Length Out Inches	Packed Dozen	Weight Lbs.	Per Doz.
1	2⅛	1	1	$3.15
1½	2⅛	1	1½	3.80
2	2⅛	1	2	5.25
2½	2½	1	3	5.80
SQUARE TOP—				
3	2¾	½	5	12.60
3½	3	½	6¾	17.20
4	3¼	½	8¼	22.00
5	3⅜	½	10	41.00

No. P15 KOREA

PAINT OR VARNISH

A Good Grade Household Line. Pure Black Bristles. Highly Polished Steel Ferrules. Green Lacquered Beavertail Handles with White Band and Black Tip.

Wrapped in "Cellophane."

Priced to Retail from 30c up.

(SET IN RUBBER)

CHISELLED—

Size	Length Out Inches	Packed Dozen	Weight Lbs.	Per Doz.
1	2⅛	1	1¾	$4.20
1½	2⅛	1	2	5.50
2	2⅜	1	2¾	8.40
2½	2⅝	1	3½	12.60
SQUARE TOP—				
3	2⅞	½	6	17.00
3½	3⅛	½	7¼	22.68
4	3⅜	½	9	33.60
5	3⅝	½	10¼	63.00
6	3⅞	½	11	88.20

No. P20 BRANT

PAINT OR VARNISH

A High Grade Household Line of Brushes. Pure Black Bristles. Securely Held in Nickelled Steel Ferrules. Green Lacquered Beavertail Handles, with White Band and Black Tip.

Wrapped in "Cellophane"

Made to Retail from 40c up.

(SET IN RUBBER)

CHISELLED—

Size	Length Out	Packed Dozen	Weight Lbs.	Per Doz.
1	2⅛	1	1¾	$5.25
1½	2⅜	1	2	8.40
2	2⅝	1	3	12.60
2½	2⅞	1	4	18.90
SQUARE TOP—				
3	3⅛	½	7	25.20
3½	3⅜	½	8½	37.80
4	3⅝	½	10	50.40
5	3¾	½	12	84.00
6	4	½	13	109.20

No. P30 ALBATROSS

PAINT OR VARNISH

This is one of the Finest Lines of Brushes we make for the Master Painter, or for Householders who want to do High Class Work. All hand made throughout.

Best Grade Blended Black Bristles. Set in Rubber in Nickelled Steel Ferrules. Handles Finished with Black Gloss Lacquer with White Band near tip.

Wrapped in "Cellophane"

(SET IN RUBBER)

CHISELLED—

Size	Length Out	Packed Dozen	Weight Lbs.	Per Doz.
1	2⅜	1	2¼	$9.45
1½	2⅝	1	2½	12.60
2	2⅞	1	3¼	20.00
2½	3⅛	1	4¼	31.50
3	3⅝	½	8	54.60
3½	3⅞	½	9½	75.60
4	4⅛	½	11	105.80
4½	4¼	½	12½	126.00

P3 REDBIRD VARNISH.

Black Bristles. Nickelled Steel Ferrule.
Red Polished Handles.
A low priced brush for general household work.

Size	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
1	1⅞	1	¾	$1.40
1½	1⅞	1	1¼	2.10
2	1⅞	1	1½	2.80
2½	1⅞	1	2	3.55

P55 (303) SWIFT RADIATOR.

Black Bristles. Long Plain Handle.
Nickelled Steel Ferrule.
A thin brush for painting radiators.

Size	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
1½	1⅞	1	1½	$6.50

P70 (392) ONYX SASH.

Black Bristle. Nickelled Steel Ferrule.
A good quality sash tool for ordinary work and our best seller.

Sizes 1, 2, 4, 6, Green Handle with White Band.
Sizes 8, 10, 12, Black Ebony Handle with White Band.

Size	Diameter Inches	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
1	⅜	1¼	1	½	$2.75
2	½	1⅜	1	½	3.35
4	⅝	1⅝	1	1	4.20
6	¾	1⅞	1	1½	5.50
8	⅞	2⅛	1	2	8.40
10	1	2⅜	1	3	11.00
12	1⅛	2⅝	1	4	17.85
Assortment 1-10.					5.00

P85 (532) BLACK EAGLE STUCCO. WALL.

CHISELLED. (ARTIZAN).

Best Quality Bristles. Non-corrosive Ferrules.
Black Ebony Finished Handle. White Band.
A heavy brush of exceptional quality, suitable for painting large surfaces. No. 4½ is very often used for kalsomining cornices and small areas inaccessible to a large brush.

Size	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
3	4	½	9¼	$75.60
3½	4¼	½	10¾	100.80
4	4½	½	11¾	121.80
4½	4½	½	13	140.70

TAKE CARE OF YOUR BRUSHES

Never put a brush in water. It causes the bristles to swell, and destroys the sweet working action of the brush. The bristle is like a sponge and will absorb enough water to become flabby. And of course the nickel will rust. Wash your brushes out in turpentine or even coal oil, then wrap them in paper. They will last for years.

P110 (610) CANARY.

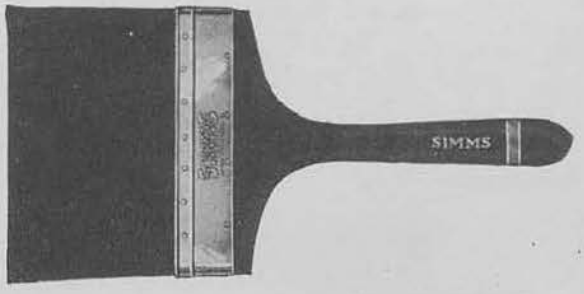
White Tampico. Plain Metal Ferrule.
Hardwood Handle.
The cheapest handled whitewash on the market.
Machine Made.
One-half dozen wired together.

Size	Length Out Inches	Weight Lbs.	Per Doz.
	2¾	9	$3.05

P120 (612) LOON.

Extra White Tampico. Plain Metal Ferrule.
Red Lacquered Handle.
One-half dozen in box.

Size	Length Out Inches	Weight Lbs.	Per Doz.
	3½	11½	$6.30



P125 (635) ZULU.

(SET IN RUBBER)

Black Bristles. Nickelled Steel Ferrules.
Natural Polished Handles. Red Band, Black Tip.
One-quarter dozen in box.

Size	Length Out Inches	Weight Lbs.	Per Doz.
7	2¾	16	$23.10

P140 (640) EBONY.

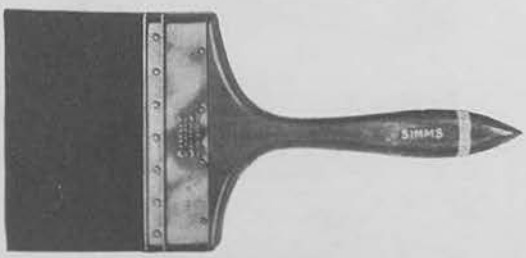
(SET IN RUBBER)
Pure Black Bristles. Nickelled Steel Ferrules.
Black Polished Handles. Gold Band, Red Tip.
Popular all over Canada as an efficient household brush.
One-quarter dozen in box.

Size	Length Out Inches	Weight Lbs.	Per Doz.
7	4	18¾	$115.50

P170 (160) STIPPLING.

(SET IN LEAD)
Block 5×5 inches. Reversible Handle.

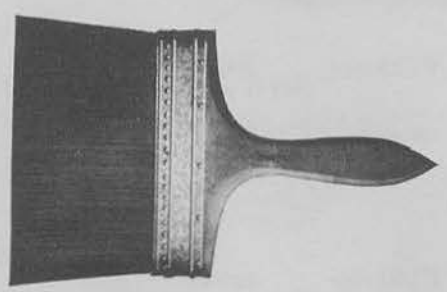
No.	Stock	Length Out Inches	Weight Lbs.	Per Doz.
2	Grey Bristle	2⅜	30	**$105.00**



P185 (653) BRISTLE TINTING OR KALSOMINE.

Black Bristle. Wall Brush Style.
Nickelled Steel Ferrules.
Especially designed to give the householder a bristle brush to replace the old fibre brush.
Will give splendid results and last a long time.
One-half dozen in box.

No.		Length Out Inches	Weight Lbs.	Handle Finish	Per Doz.
6	Family	2¼	9	Green	**$15.75**



P220 (716) O. K. PASTE.

Stiff Grey Bristles. Non-corrosive Ferrule.
Natural Polished Handle.
One-half dozen in box.

Size	Length Out Inches	Weight Lbs.	Per Doz.
7	4¼	22	**$143.00**

P255 (44) BRANT GLUE. FLAT.

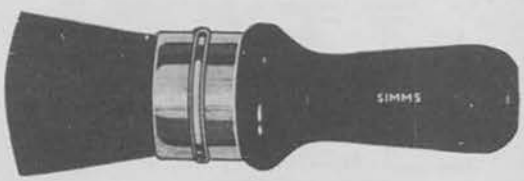
Stiff Grey Bristle. Galvanized Ferrule.
Plain Handle.

Size	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
1	1⅞	1	1½	**4.55**
1½	2 1/16	1	2	**5.80**
2	2¼	1	3	**8.25**
2½	2½	1	4	**11.55**

P265 (48) ORIOLE GLUE. ROUND.

Highest Grade Stiff Grey Russian Bristles.
Galvanized Steel Ferrule. Natural Handle.

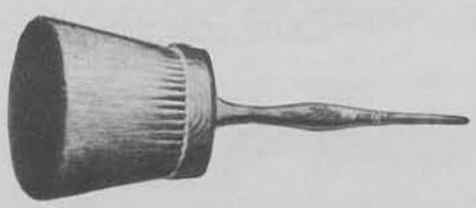
Size	Inside Diameter	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
60	1 5/16	2½	1	4	**$20.00**
80	1 9/16	2⅞	1	5½	**30.50**
100	1 13/16	3¼	1	8	**48.30**



P275 (50) O. K. STENCIL.

Stiff Black Bristles. Galvanized Steel Ferrule.
Natural Polished Handle.
Packed one dozen in box.

Size	Inside Ferrule Diameter	Length Out Inches	Weight Lbs.	Per Doz.
3	⅞	1¼	1¾	**$9.50**
5	1	1⅝	2¼	**10.70**
7	1¼	1½	3	**12.45**
9	1⅜	1⅝	4	**14.25**
11	1 9/16	1¾	5½	**17.80**
13	1 13/16	1⅞	7	**25.00**



P290 (74) CYCLO. OVAL.

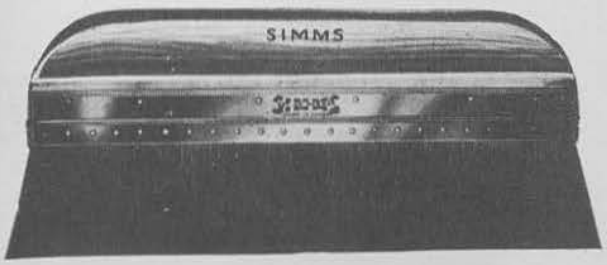
(WIRE DRAWN)
Natural Polished Blocks. Size 3½×2¼.
One-half dozen in box.

No.	Stock	Length Out Inches	Weight Lbs.	Per Doz.
20	Black Bristles	3½	6½	**$37.80**

P295 (81) KINGFISHER. FLAT.

(SET IN PITCH)
Highest Grade Grey Russian Bristles.
Red Handle. One-half dozen in box.

No.	Size	Length Out Inches	Weight Lbs.	Per Doz.
45	$4\frac{1}{4}\times1\frac{1}{8}$	4	9	**$46.20**



P315 (106) ACTO.

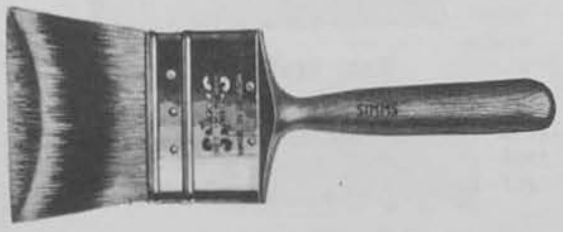
(WIRE DRAWN)
Grey Bristles. Two Rows.
Yellow Varnished Blocks.
One-half dozen in package.

Size	Length Out Inches	Weight Lbs.	Per Doz.
10	$2\frac{1}{4}$	8	**$25.20**
12	$2\frac{1}{4}$	$10\frac{1}{2}$	**29.40**

P320 (138) TEAL.

SET IN RUBBER—RIVETTED
Stiff Black Bristles. Metal Ferrule.
Natural Polished Blocks.
One-half dozen in box.

Size	Length Out Inches	Weight Lbs.	Per Doz.
10	$2\frac{5}{8}$	$11\frac{1}{4}$	**$27.30**
12	$2\frac{5}{8}$	$14\frac{1}{2}$	**34.65**



P335 (938) XX ORIOLE FITCH FLOWING.

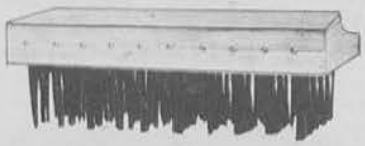
Green Handles with White Band. Nickelled Steel Ferrules. Made of finest Grade Prime Eastern Black Skunk Hair. Generally used in the furniture varnishing or lacquering trade or in other work when light varnish is used.

Size	Length Out Inches	No. Dozen in Box	Weight Lbs.	Per Doz.
1	$1\frac{1}{2}$	1	1	**$14.35**
$1\frac{1}{2}$	$1\frac{5}{8}$	1	$1\frac{1}{2}$	**15.75**
2	$1\frac{3}{4}$	1	2	**19.40**
$2\frac{1}{2}$	$1\frac{7}{8}$	1	3	**26.55**
3	2	1	4	**32.35**

P375 (825) BRISTLE MARKING. (ROUND).

White Bristles. Long Handle.

No.	Per Doz.	No.	Per Doz.	No.	Per Doz.
1	**$0.75**	3	**1.00**	5	**1.20**
2	**.90**	4	**1.10**	6	**1.50**
1 dozen assorted on cards					**1.05**



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H490 WIRE CASTING.

Flat Steel Wire. No.	Size	Hardwood Blocks. Rows	Length Out Inches	Packed Loose. Weight Lbs.	Per Doz.
3	$7\frac{1}{2}\times2\frac{3}{4}$	5×10	3	$15\frac{1}{2}$	**$9.00**
5	$7\frac{1}{2}\times2\frac{3}{4}$	5×10	4	$18\frac{1}{2}$	**9.70**

178

H515 ROUND WIRE — FLAT BACK.

Fine Steel Wire. Plain Hardwood Blocks. For use on wood, iron or stone, chiefly on wood.
One-half dozen in package.

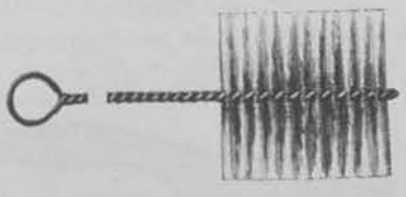
Size	Rows	Length Out Inches	Weight Lbs.	Per Doz.
$7\frac{1}{4}\times2\frac{7}{16}$	6×19	$1\frac{11}{16}$	10	**6.10**

180

H525 ROUND WIRE — CURVED BACK.

Fine Steel Wire. Plain Hardwood Blocks.
For use on wood, iron or stone, used chiefly by painters for cleaning old paint from woodwork.

Size	Rows	Length Out Inches	Weight Lbs.	Per Doz.
$7\frac{1}{8}\times2\frac{3}{8}\times\frac{7}{8}$	7×18	$1\frac{1}{8}$	10	**$6.30**



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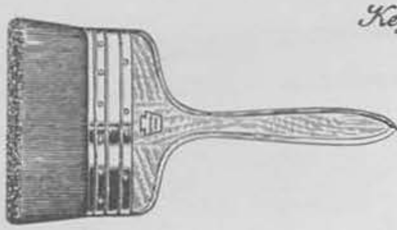
H575 HOT AIR FURNACE.

Twisted Wire Handle. Four Feet in Length.

Diameter	Stock	Weight Lbs.	Per Doz.
4	Steel Wire	11	**$3.10**

Keystone TRADE MARK *Brand.*



Whitewash Brushes

	Per Doz.
7 inch, POLAR —White Fibre, Trim. $2\frac{5}{8}$ inches...	$ 8.00
7 " KRACKER— " " " $2\frac{7}{8}$ " ...	10.00
7 " PYREX —Superior White Fibre, Trim. $3\frac{1}{2}$.	18.00

Grey Fibre Tar Head

	Per Doz.
1583—3 Knot ....Trimmed 3 inches.........	$ 13.50

Scrub Brushes

	Per Doz.
499—Bass, $9\frac{3}{4}$ inch Block....................	$ 3.75
500—White Fibre, $9\frac{3}{4}$ " "	4.25
2026— " " $9\frac{1}{2}$ " " Very Full.........	6.50

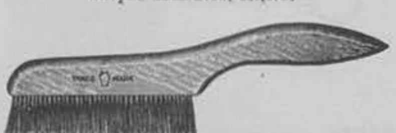
Scrub Brushes

	Per Doz.
2019—White Fibre, $10\frac{1}{2}$ inch. block................	$ 8.25
298—Brown Stiff Bass, 10 " "	8.00

Deck Scrubs

	Per Doz.
322—White Fibre with Rubber, Size 11 x 3 inches...	$ 14.00
326—Bass, with Rubber, " 11 x 3 " ...	12.00

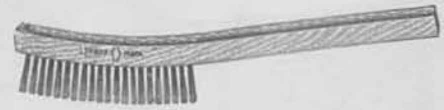
Maple Handles, Extra.



Wire Scratch Brushes

Tempered Round Steel Wire.

	Per Doz.
541—4 x 17 Rows ....Trimmed $1\frac{1}{8}$ inch......	$ 9.00



Wire Scratch Brushes

Tempered Round Steel Wire.

	Per Doz.
539—3 x 21 Rows.................Trimmed $1\frac{1}{8}$ inch....	$ 7.50
537—4 x 21 " .... " $1\frac{1}{8}$ "	10.00
578—2 x 10 " .... " $1\frac{1}{8}$ "	6.00

Wire Scratch Brushes

Tempered Round Steel Wire.

	Per Doz.
542—6 x 19 Rows, Flat Back, Trim. $1\frac{1}{8}$ inch.....	$ 12.00
543—9 x 19 " Curved Back, " $1\frac{1}{8}$ "	17.50

Steel Stable Brushes

Tempered Flat Steel Wire. Trimmed 5 inches.

	Per Doz.
562—12 inch, 6 x 27 Rows, Flared Ends..............	$ 50.00

Bass Stable Brushes

Natural Undyed Bass. Steel Fastened.

	Per Doz.
1903—12 inch. 4 Rows.........Trimmed 5 inches ...	$ 23.00
1905—14 " 4 " .... " $5\frac{1}{2}$ " ...	28.00
1907—16 " 4 " .... " 6 " ...	32.00
24 " 4 "	50.00

Cane Centre Stable Brushes

One Row Genuine Bass Outside, Bulawago Cane Centre.

	Per Doz.
1505—14 inch, 5 Rows, Trimmed 5 inches...........	$ 37.00
1506—15 " 5 " " 6 "	42.00
1507—16 " 5 " " 6 "	45.00

Garage Brushes

	Per Doz.
2116—Palmyra Fibre, 16 inch, Trim. $3\frac{1}{2}$ inches.....	$ 42.50

Malleable Thread Handles Included.

Keystone TRADE MARK *Brand*

Bannister Brushes

		Per Doz.
DOT	—7 inch., Grey Fibre	$ 15.00
BON TON	—7 inch., Grey Hair	22.00

Nu-Style Floor Brushes

Red Polished Backs.
Malleable Thread Handles with Lock Washers.

		Per Doz.
1564	—14 inch, Red Blocks, Heather Mixture	$ 45.00
1566	—16 " " " " "	56.00
1568	—18 " " " " "	66.00

Bermuda Floor Brushes

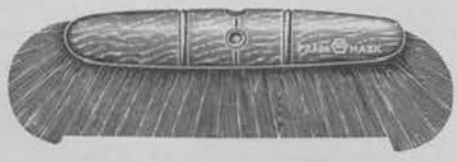
Yellow Polished Backs.
Malleable Thread Handle with Lock Washer.

		Per Doz.
1712	—12 inch. Block, Pure Black Hair	$ 49.00
1714	—14 " " " " "	54.00
1716	—16 " " " " "	62.00
1718	—18 " " " " "	70.00

Kenora Floor Brushes

Yellow Polished Backs.
Malleable Thread Handle With Lock Washer.

		Per Doz.
822	—12 inch Block, Black China Bristles	$ 150.00
824	—14 " " " " "	170.00
826	—16 " " " " "	190.00
828	—19 " " " " "	215.00



Muval Floor Brushes

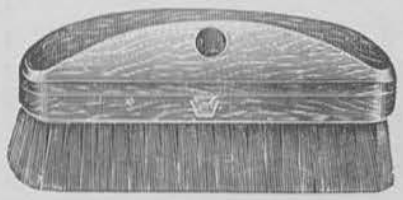
Natural Polished Backs. Long Wings For Reaching into Corners. Malleable Thread Handles with Lock Washer. Suitable For Sweeping with Floor Powder.

		Per Doz.
1312	—12 inch Block, Black Hair, Bassine Centre	$ 53.00
1314	—14 " " " " " "	60.00
1316	—16 " " " " " "	70.00
1318	—18 " " " " " "	80.00
1324	—24 " " " " " "	110.00
1336	—36 " " " " " "	160.00

Round Window Brushes

Steel Fastened. Two Holes for Handles

		Per Doz.
301	—All White Fibre, Size 4¼ inches diam.	$ 14.50
304	—All Grey " " 4 " "	16.00



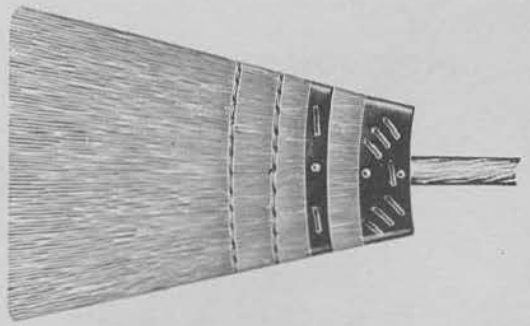
Oval Window Brushes

		Per Doz.
317	—Black Fibre, 8½ inch Block	$ 18.00
316	—All Black Hair, 8¾ " "	36.00

Closet Brushes

Round Heads. Steel Fastened. Ring Hanger.

		Per Doz.
768	—Stiff Grey Union, 4 inch diam. Green Handle	$ 12.00



All Corn Metal Case Brooms

For Factories, Warehouses and other heavy sweeping, where an All Corn broom is required.

		Per Doz.
2503	—30-31 lbs., band and 2 strings	$ 11.25
2504	—35-36 " " 2 "	13.50
2505	—40-42 " " 2 "	15.40

Mixed Corn - Bamboo Metal Cased Brooms

For Railway, Factory and Warehouse Purposes

		Per Doz.
2513	—30-31 lbs., band and 2 strings	$ 11.25
2514	—35-36 " " 2 "	13.50
2515	—40-42 " " 2 "	15.40

OILS AND GREASES

Listed below are the oils and greases we carry in stock—market prices.

Ideal Cylinder Oil
Engine Oil
Autolene Motor Oil
Winter Strained hard Cutting Oil
Williams Cutting Oil
Sulflo Cutting Oil
Vulcan Cup Grease
Keystone Cup Grease

Cut Perfect Threads—Get Tighter Joints. Use Sulflo on your next threading job. Saves time and tools. Does a better job in half the time. Ask your jobber.

Sulflo
Sulphur that flows
THE MODERN CUTTING OIL

3-In-One Oil

This 3-In-One Oil is a blend of animal, mineral, and vegetable oils, scientifically compounded. For oiling light mechanisms, preventing rust on metal, cleaning and polishing wood.

Has a wide variety of uses for oiling, cleaning and protecting sewing machines, vacuum cleaners, clocks, door locks and hinges, electric motors, window latches, squeaking castors, fans, exercisers, bicycles, roller skates, guns, etc.

Prevents rust on kitchen ranges and nickeled bath room fixtures.

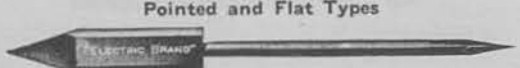
8-Ounce Bottle, ½-Pint	each	$.50
3-Ounce Bottle	each	.25
1-Ounce Bottle	each	.10
3-Ounce Handy Oil Can	each	.25
1-Ounce Oilright Handy Can	each	.15
1-Gallon Can	each	5.00

PIPE JOINT COMPOUND

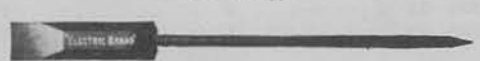
A true lubricant for the threads of pipes, bolts, nuts, turn-buckles, gaskets and etc., allowing them to be taken apart without damage.

Forged Soldering Coppers

Pointed and Flat Types



Pointed Type



Flat Type

Both pointed and bottom coppers are made in the following sizes: ¼, ½, ¾, 1, 1½, 2, 2½, 3, 3½, 4, 5, 6, 7, 8, 10, 12, 14, and 16 pounds per pair.

Are forged from virgin electrolytic copper. Have very great heat retaining powers.

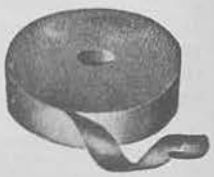
Malleable Wing Nuts

Tapped U. S. S.

Furnished japanned or nickeled to order. Also furnished Plain, not tapped, when so ordered. When sold plain, AA, A, B, C are solid pattern. Other threads tapped to order.

Style	Per 100	Bolt In.	Height In.	Diam. Base In.	Wing Spread Inches	Quantity in Box
AA	1.80	5/16	1/2	5/8	1 1/16	100
A	2.25	1/4	3/8	1/2	1 1/4	100
B	2.50	5/16	1/2	5/8	1 1/2	100
C	3.55	3/8	5/8	3/4	1 3/4	100
D	4.60	7/16	1	3/4	2	50
E	6.25	1/2	1 1/4	1 1/8	2 1/4	50
G	10.00	5/8	1 1/4	1	2 5/8	25

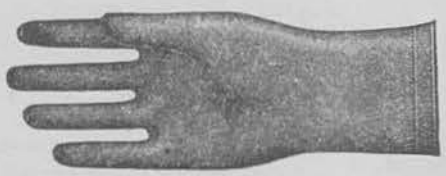
Friction Tape



This is a good grade friction tape. Furnished in ½-pound rolls ¾ and 1 inch wide.

Per pound ..... $ .60

Rubber Gloves



Heavy rubber gloves, specially treated for hard service in factories, hotels, institutions, etc. Furnished in sizes 7 to 11.

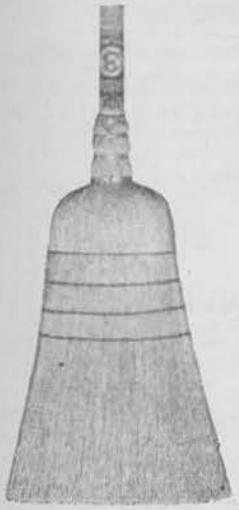
Acid rubber gloves available on request in one size, 10½.

Price on application.

Our line of tapping and threading devices is complete at all times.

Special catalogues and bulletins on this subject are yours for the asking.

Let us assist you in solving your tapping and threading problems.



HOUSE AND MILL BROOMS

Mill Brooms

Substantial, all corn, 1 wire, 3 string, 32 lbs. per doz. ..... **$9.00** Doz.

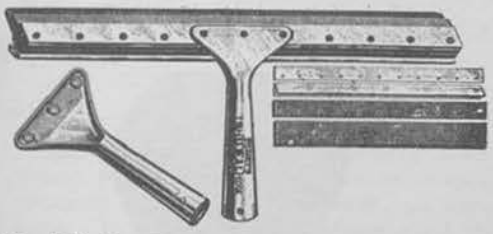
Mill Brooms

Railroad, cane and corn, 1 wire, 3 string, 32 lbs. per doz. ..... **$9.00** Doz.

Brooms

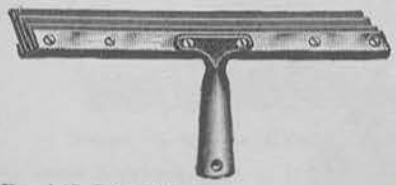
No. 8 Household, all corn, 5 string, 18 lbs. per doz. ..... **$4.80** Doz.

WINDOW CLEANERS



No. 99—16" Per Doz..... **$24.00**

No. 33—14" Per Doz..... **$4.50**



No. 60R—14" Per Doz..... **$6.00**

BRASSO

METAL POLISHES

BRASSO

Produces a brilliant and lasting lustre on all metals. Free from grit or other injurious materials.

Nos.	3	6	12	24	96
Capacity	¼ pt.	½ pt.	1 pt.	1 qt.	1 gal.
Per dozen, List	**$2.00**	**3.30**	**7.20**	**13.80**	**47.40**
Packed	2 doz.	1 doz.	1 doz.	1 doz.	in box

BATHROOM TISSUE

WHITE SWAN

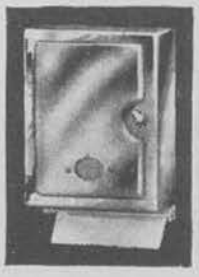
A snow white and velvety soft tissue of the first quality. 750 sheets per roll, 8½ oz. roll. 100 rolls per case.

NAVY

A fine quality tissue with 700 sheets per roll. 7½ oz. roll, packed 100 to a case.

DREADNOUGHT

The most popular grade of bathroom tissue. Good quality. 630 sheets per roll, 7 oz. roll, packed 100 to a case.



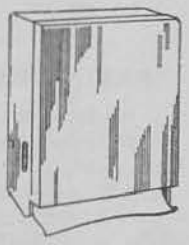
ONLIWON

Onliwon is a high grade tissue, more economical than rolls. It comes in packages of 800 and 1000 sheets, cases of 100 packages. Cabinets obtainable.

ONLIWON PAPER TOWELS

Onliwon towels are made of white sterilized paper, and suitable for household or public use. Packed 125 towels to a package, 30 packages to a case. Available in two sizes:—

Junior: 9" x 14¾"
Senior: 11¼" x 14¾"
Cabinets obtainable.



WRAPPING PAPER

Eddy's No. 1 and No. 2 Kraft papers available in all weights ranging from 25 lbs. to 100 lbs. per ream, 24" x 36".
Price on application for all the above material.

LINSEED OIL SOAP

A 100% pure Linseed Oil Soap in paste form. It is especially adapted to cleaning floors, woodwork, furniture and etc. Supplied in 5, 10, 25, and 100 lb. Containers and Barrels approximately 450 lbs. Prices on application.

VICTORINE SOAP

Victorine Soap is a solvant and Detergent; it is also a disinfectant; soap of this type readily cleans all types of dirty floors.

Per Gal. ..... $ .90

SANISPRAY

Sanispray is a very efficient floor dressing, germicidal, and preservative, closes the pores in the wood and holds the dust to the floor, is used extensively by Schools and Public Institutions.

Per Gal. $1.00

SAVOGRAN HEAVY DUTY CLEANER

Cleans paint like magic—removes ground-in dirt quickly without scrubbing. Strong solution softens and renews hard paint brushes, softens paint and varnish for easy removal.

1 Lb. Cans .....$ .45 per lb.
5 Lb. Cans ..... .40 per lb.

SAVOGRAN CRACK FILLER

Fills cracks, holes in wood, plaster, stone. Repairs furniture, makes inlays, moulds parts, tightens loose rungs and casters—hundreds of uses. Powder form—mix with water. Hardens quickly takes paint or stain and will not shrink.

1 Lb. Cans .....$ .50 per lb.

SAVOGRAN REMOVER AND BLEACHER

Removes wax, old floor varnish or paint. Cleans and bleaches in one operation. Safe—no fire danger, no caustic, no acids, no "Paint Remover" smell, no fumes, no gummy residue. One pound makes one and a half gallons of remover.

1 Lb. Cans .....$ .75 Per Lb.

WALL PAPER CLEANER

"Climax" Wall Paper Cleaner cleans wall paper, window blinds, hats. It is in putty form, easy to use, packed 3 dozen to carton.

Per dozen .....List $2.00

FLOOR WAX

Royal Sovereign Brand. This wax is prepared from a special deodorized solvent and produces a lasting finish. One pound covers approximately 400 Sq. Ft. one coat.

1 Lb. Cans .....$ .50 per lb.
5 Lb. Cans ..... .47 per lb.

OLD ENGLISH LIQUID WAX

A quick method of waxing and cleaning in one operation.

1 Gal. Cans $4.20

OLD ENGLISH

No Rubbing. Liquid Floor Polish for wood floors, linoleum, rubber, asphalt, mastic composition, tile, terrazzo, cement and marble floors.

1 Gal. Cans $3.50

Nassau Sponges—Durable, absorbent and soft in texture. For washing automobiles, etc. Approximate number of sponges to the pound, 8 to 10.

Each .....List $ .75
10 to 12 to pound. Each..... .50

Grass Sponges—Dozen .....List $3.00
Aklin 8 to 10. Each..... 1.00

Chamois—Guaranteed washable. Each in separate waxed envelope.

Size	Per doz. List
20 x 20	$17.40
22 x 23	21.60

COCOA MATS

14" x 24" Per doz..... $9.35
16" x 27" " " 13.00
18" x 30" " " 14.40

Other sizes not listed, price on application.

SWEEPING COMPOUND

DUSTBANE. Sanitary sweeping powder, green in color. Contains antiseptic oils. Gives off pleasant odor which passes away in few minutes after purifying the air. Absorbs dust. For use on carpets, rugs, matting and bare floors. In homes, stores, offices, schools, churches, public halls, etc.

3¼ Lb. Tins

Two dozen in case

In Barrels

Wgt. lbs.	37½	75	150	250

Packed in 300-lb., 200-lb., 100-lb., 50-lb., gross weight containers.

SISAL sweeping compound is different. It does not dry out, freeze or spoil, contains **no sawdust, no water, no kerosene.** It holds the oil; absorbs all the dust; does not stain the floor when left there a reasonable time; is not inflammable. It does better work and because of that is the most effective compound in preventing the spread of germs.

FLOOR DRESSING

Drums, ½ Drums, 5 Gals. 1 Gal.

Floor Dressing is a high grade Mineral Floor Oil—germicidal—preservative. Holds the dust to the floor. Closes the pores of the wood, preventing checking, and splintering. Does not make the floor sticky nor track under traffic.

WYANDOTTE DETERGENT

A scrubbing and cleaning powder for cleaning marble floor, basins, nickle and brass, painted surfaces. (75 lb. kegs)

FLOOR CLEANER

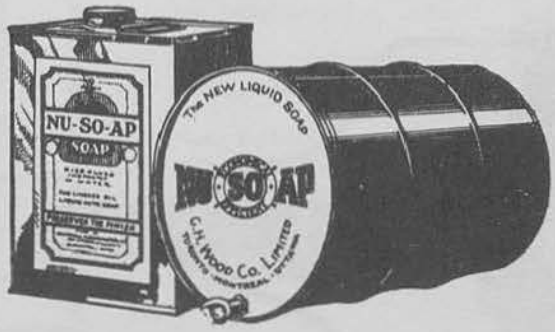
"Quik" Cleaning Crystals

One of the most powerful cleansing agents known—particularly recommended for use with hard water.

One or two ounces of "Quik" Cleaning Crystals to a pail of water makes an economical solution that will cut all grease and yet will not harm the hands.

Bbls. 325 lbs.

Liquid Soap



NU-SO-AP is a pure and neutral soap—it can be used safely for washing rubber floors, linoleums, tinted walls, automobiles—in fact anything—because it is always safe.

NU-SO-AP—being a liquid—dissolves instantly in cold or hot water—wastage is impossible.

IN 5 Gals. and Drums.

Pure cocoanut and olive oils from Ceylon and France saponified with the best grade potash are the only ingredients used in Lik-wiD brand toilet soaps—thus assuring guaranteed purity.

Lik-wiD brand Soap has been proven to be more economical—every drop is used, wastage is impossible.

A Grade for Every Purpose
Latherite—Oriental Pearl—Mulso—DeLuxe—Mechanics
—Base (concentrated)—Surgical Green Soaps
Liquid Olive Oil "Baby" Soap
Formulated Soaps for Special Purposes

Drums, ½ Drums, 5 Gals. 1 Gal.

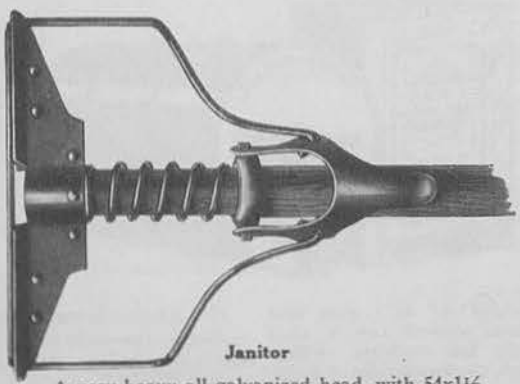
TARBOX MOP-STICK

No. 10

No. 2. Two-piece steel head, firmly riveted. Evenly balanced with the handle standing central. Steel lever and coil wire spring. $^{15}/_{16}$ inch diameter handle, 4 feet long. Metal parts coppered finish. Per Doz. **$3.00**

No. 10—Combination. Mop and brush holder. 4 foot maple handle. Per Doz. **$3.70**

Weight per dozen 15 lbs. One dozen in bundle

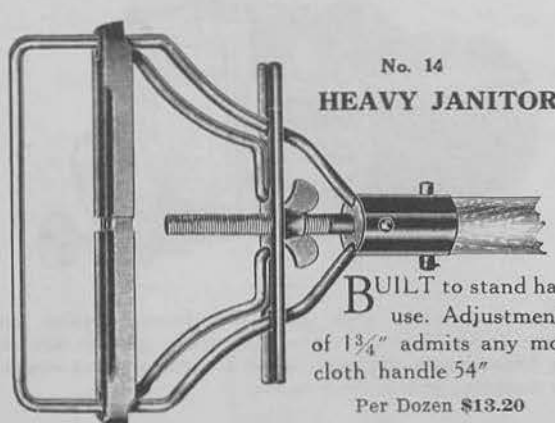


Janitor

A very heavy all galvanized head, with 54x1⅛ inch handle. Head is made of two pieces of stamped steel well rivetted together. Especially made for janitor's use.

No. 11—7 inch head. Weight per bundle 24 lbs
Per doz. **$9.00**

One dozen in a bundle.



No. 14

HEAVY JANITOR

BUILT to stand hard use. Adjustment of 1¾" admits any mop cloth handle 54"

Per Dozen **$13.20**

SELF WRINGING MOPS

Coppered steel. Malleable iron sliding brace. 15 x 6 inch frame. 48 x $^{15}/_{16}$ inch plain hardwood handle. Extra heavy double braided cotton mop. Wrings by pulling handle back and twisting. Per Doz.

No. 1—With mop cloth. Weight dozen 22 lbs..... **$7.00**

One dozen in bundle

TARBOX FLAT MOP-HEADS

Medium White and Medium Grey

Flat Head—Will fit any regular mop stick. Securely fastened in centre by strong tape.

Weight, ozs.	16	20	24
Per Doz. M. W.	6.00	7.80	9.00
Per Doz. M. G.	5.40	7.20	7.80

TARBOX KNITTED MOP-CLOTHS

Heavy double braided white cotton.

Extra knitted.

No. 1, The size in the Self-Wringing Mops.
No. 2, a size smaller than the No. 1.

No. 1 Dozen..... **$2.50**
No. 2 Dozen..... **2.00**

Tarbox Mop Wringer

TARBOX ADJUSTABLE MOP WRINGER

Price Each $5.75

All metal—light, strong, well finished

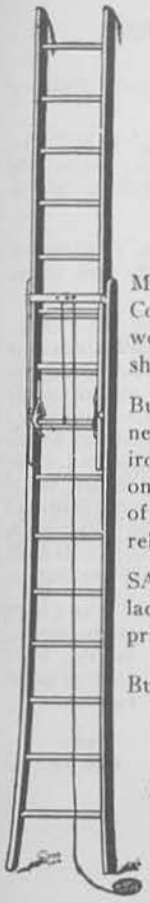
DESIGNED for all kinds of janitor service, works smoothly and easily and with *extraordinary* power.

Will accommodate and *wring dry* any size mop, large or small, used by janitors.

Fits any pail or bucket—just slip it on.

TARBOX YACHT MOPS AND ROOFING MOPS

For hardwood floors, linoleums, yacht decks, etc. Fine cotton twine. 52 inch wood handle.



BULL DOG BRAND

ROPED EXTENSION LADDER

Made from clear, straight-grained British Columbia Fir, free from defects, with hardwood rungs 1⅛" in diameter. Square shouldered on ends.

Bulf Dog Brand Ladders are equipped with a new gravity hook, made of heavy malleable iron. It is the easiest working hook ever put on a ladder, no springs to weaken or get out of order. Reliable, sure hooking and sure releasing.

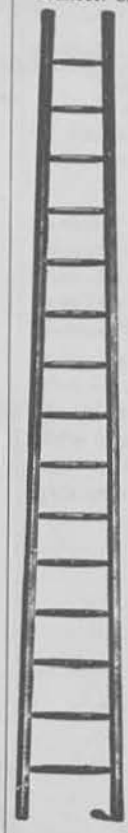
SAFETY is the most important feature of a ladder. An unsafe ladder is expensive at any price.

Bull Dog Ladders are rigidly inspected and GUARANTEED for their strength and durability.

Reinforced with No. 9 Galvanized Wire.

Sizes: 20' to 40'

COMMON SINGLE



FRUIT PICKING

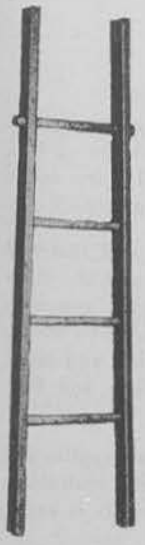
COMMON SINGLE AND FRUIT PICKING LADDERS

are the same standard of quality as Bull Dog Brand Extension Ladders.

They are light and strong, reinforced with No. 9 galvanized wire.

The Fruit Picking Ladder has a short extension set in the top for resting in the crotch of a tree.

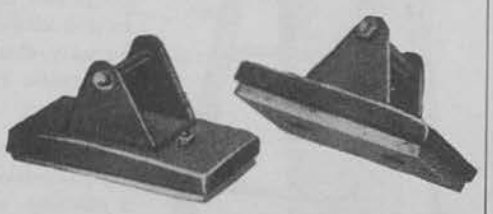
Sizes: 8' to 20'



SECTIONAL LADDERS

A strong, light ladder for hurry-up jobs made in sections 6 and 8 ft. long, sides are of B.C. Fir 2½ in. x 1¼ in., rungs 1⅛ in. hardwood.

Sections are interchangeable, and a ladder 30 ft. or more can be carried and erected in a few moments.



Block Type Cork Grip Shoes

The Block Type Cork Grip Shoes are not adjustable as to ladder side width. The metal parts are of pressed steel in which a block of cork is inserted. This may be renewed when worn out. This shoe has been in general use for a number of years and will prevent slipping on any smooth floor surface.

Price, Adjusto Cork Grip Shoes	per pair	$1.50
" " Point " "	"	1.50
" Block Type Cork Grip Shoes	"	1.50

"SPECIAL QUALITY" 2 AND 3-SECTION LADDERS

For Builders, Painters, Tinners, Telephone Linemen, Fire Departments, Electrical and Heavy Work.

Material

SIDES—Sitka Spruce.
RUNGS—Selected Hickory.
CASTINGS—Malleable Iron.

Dimensions

SIDES—2 Piece Ladders:
20 to 28 feet 2¾ x 1⅜ inches
30 to 36 feet 3⅛ x 1⅜ inches
38 to 40 feet 3½ x 1⅜ inches

3 Piece Ladders
Up to 54 feet 3⅛ x 1⅜ inches
56 to 60 feet 3½ x 1⅜ inches

RUNGS—1⅛ inches with ⅞ inch square shoulder at ends, let into sides 1 inch and fastened with 2½ inch nails. This shoulder on the rung rests against the side of Ladder and holds it rigid, overcoming all sidesway.

Due to the size and strength of the side rails there is no wire re-inforcing on these ladders making them especially safe for electrical work.

The 2 piece ladder shows the push up style of lock. The 3 piece illustrates the rope and pulley type.

These ladders are equipped with 8 corner braces for further strengthening.

Made in all sizes, 20 to 60 feet.

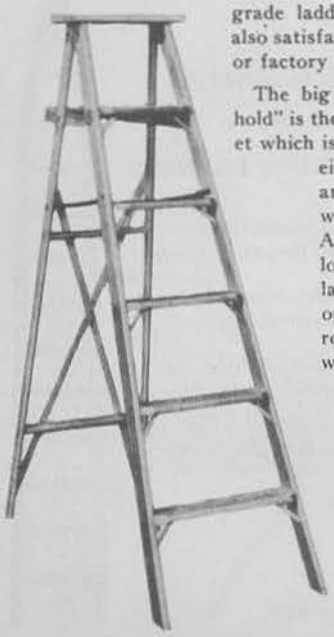
When rope and pulley attachments are required, add $2.00 per ladder.

Weight—2¼ lbs. Per Foot.

2 Piece Push Up

3 Piece Roped

"HOUSEHOLD" STEP LADDERS



The "Household" is a better grade ladder for the home and is also satisfactory for light warehouse or factory use.

The big feature of the "Household" is the heavy galvanized bracket which is fastened to the top with eight rivets. The back legs are hinged to this bracket, which makes it very solid. Another feature is the steel lock brace, which holds the ladder firm and rigid when open for use. Has steel rods reinforcing every step, with pail rest.

Sides 2⅝ in. x 25/32 in.

Steps 3⅝ in. wide.

Sizes: 4' to 8'

"STANDARD" STEP LADDERS

The "Standard" is our high grade Warehouse, Factory or Painters' Ladder.

Is made from No. 1 B.C. fir. Sizes, 3¼ in. x ⅞ in.; steps, 3⅝ in. x ¾ in.; top, 15½ in. x 5½ in. x 13/16 in.

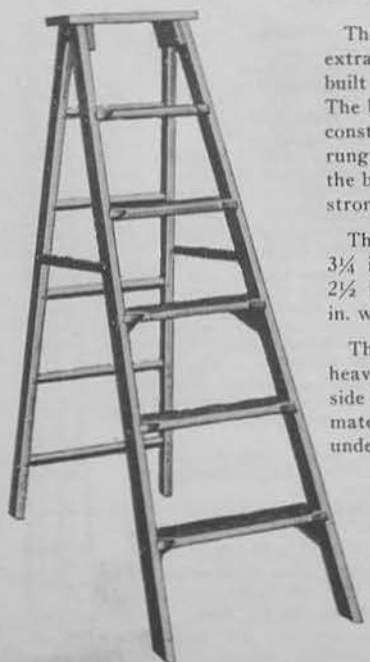
Has steel rods, reinforcing every step, with pail rack, complete.

The feature of the "Standard" is the malleable iron casting which fits over the top of the back leg and prevents the leg from spliting; these two castings fit together snugly and overcome the wear of wood against metal where the back leg is rivetted direct to casting.

It is a high grade, strong ladder, built to give satisfaction.

Sizes: 4' to 12'

ELECTRICIAN



The Electrician is an extra quality Step Ladder, built for continuous use. The back legs are of heavy construction, braced with rungs set 12 inches apart, the back of the ladder is as strong as the front part.

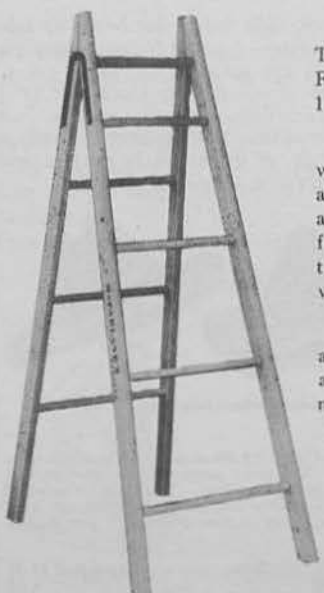
The sides are B.C. Fir 3¼ in. x ⅞ in., back legs 2½ in. x ⅞ in., steps 3⅜ in. wide.

The ladder pivots on heavy iron hinges and the side braces are of the same material, with an iron rod under each step.

Metal braces are placed behind the bottom and third steps, these braces bind the ladder firmly and stop all side motion.

Sizes: 1' to 12'

PAINTERS' TRESTLES



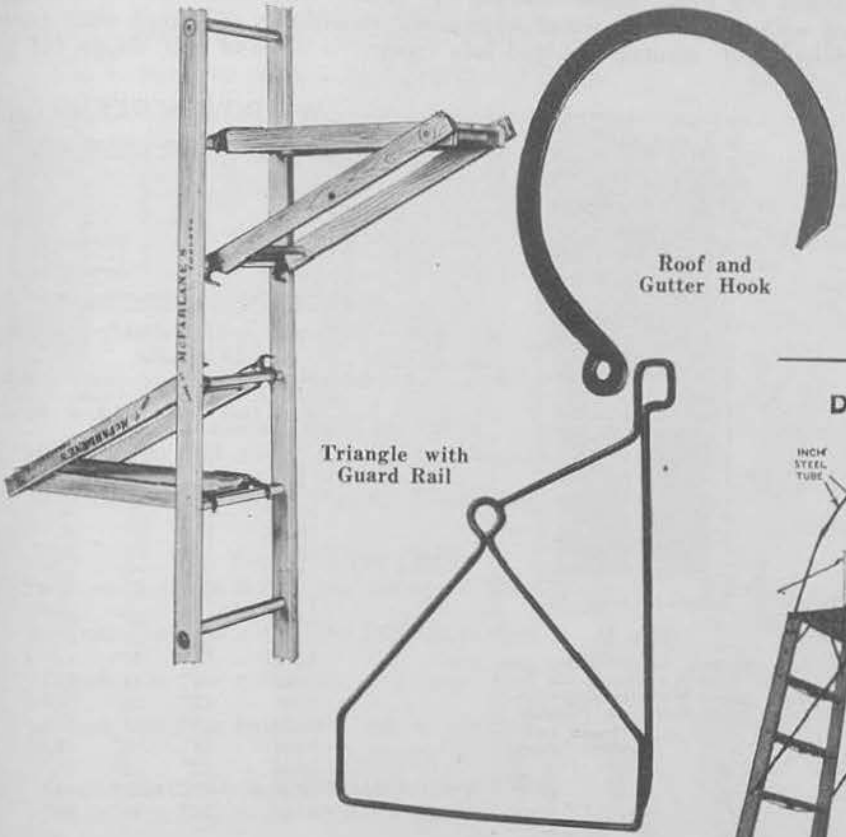
A light, strong handy Trestle. Sides are of B.C. Fir 2½ in. x 1¼ in., rungs 1⅛ in. hardwood.

The rungs are fastened with screws, and the sides are joined at the top with an iron hinge, which allows for easy closing and holds the trestle rigid and firm when open.

Two of these trestles and a plank make a scaffold in a moment, which is easily moved about.

6 ft.	10 ft.
7 ft.	12 ft.
8 ft.	14 ft.
9 ft.	16 ft.

SWING STAGE SUPPLIES



LADDER BRACKETS

Indispensable to painters, plasterers and contractors.

A quick scaffold can be made where ladders are used. Works equally well on outside or inside of ladders.

Made of B.C. Fir, with malleable iron hooks. Easy to handle, light and strong.

ADJUSTABLE EXTENSION PLANKS

A strong, light Plank that can be made to fit any room.

Easy to handle, especially on stairways or in short spaces.

Made from B.C. Fir. Will always lay flat on trestles or ladders.

Made in three sizes:

Closed	Fully Extended	Width
6 ft.	10 ft. 6 in.	11 in.
7 ft.	12 ft. 6 in.	11 in.
8 ft.	14 ft. 6 in.	14 in.

Dayton Safety Ladders

The Dayton Safety Ladder is an entirely new departure in ladder construction. Strongest wood is used on all wooden parts. Metal fittings are made of steel. Every step is supported by a steel rod.

The platform members are supported in steel angles. The legs are braced with diagonal trusses of flat steel and steel rods.

The ladder is easy to set up and take down, yet it cannot collapse. It will not wabble, slip or shake and its remarkable steadiness gives the person who uses it a feeling of confidence that makes possible faster, surer work.

Recommended for domestic use and for use by electricians, millwrights, carpenters and in industrial plants.

At the top of the ladder side rails are provided which are used in climbing and also provide an additional brace. These side rails inspire confidence in the user of the ladder and enable him to work without the slightest feeling of danger.

Much of the work with a Dayton Safety Ladder can be done while the workman is standing on the platform. This provides a place for tools, bucket or material needed for the job. It is sufficiently large to accommodate two workmen when needed. It eliminates frequent trips to the floor.

Leaning, pushing or pulling will not make the Dayton Safety Ladder collapse. It is always steady, and is so strongly built that it will easily support far greater loads than it will ever have to carry.

The unusually wide spread between the legs not only gives steadiness but also permits placing the ladder over articles of furniture.

Dayton Safety Ladders are made in the following sizes, based on ceiling heights, or the reach required for work in a store. Size measurements are to the working platform only.

Size Feet	For Ceiling Heights Feet	Price Each	Size Feet	For Ceiling Heights Feet	Price Each
3	8 to 9½	$9.50	10	15 to 16½	$23.50
4½	10 " 11	15.00	12	17 " 18½	26.00
6	11 " 12½	17.50	14	19 " 20½	29.00
8	13 " 14½	20.50	16	21 " 22½	32.00

SCREEN DOORS AND WINDOWS

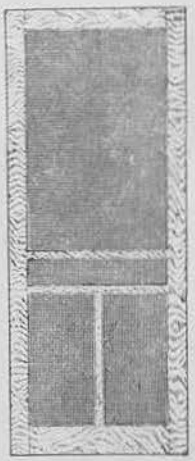
With Improved, Full Mortise and Tenon Joints

Made of carefully selected, well seasoned dry Pine. Approximately 7/8" thick; stiles cut from 4" widths. Perfectly fitted and smooth finished with special fillers and waterproof varnishes. Wired with best grade wire cloth thoroughly stretched and securely wedged into frame. Packed half dozen (of a size) in a crate.

No. 21

Fully mortised; selected pine; stiles 7/8x4 ins. Grained, filled and varnished finish. 14 Mesh Galvo-Grey Wire Cloth.

No.	Width	Height
21-A.	2' 6"	6' 6"
21-B.	2' 8"	6' 8"
21-C.	2'10"	6'10"
21-D.	3'	7'

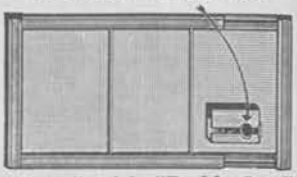


No. 1

Fully mortised, selected pine; stiles 7/8x4 ins. Grained quartered oak finish.
No. 1—Green Wire cloth, 12-mesh.
No. 3—Galvo Grey cloth, 14-mesh.

No.	Dozen List Width	Height
1-A.	2' 6"	6' 6"
1-B.	2' 8"	6' 8"
1-C.	2'10"	6'10"
1-D.	3'	7'

WINDOW SCREENS



"Paris" with "Reddy-Loc" Adjustable.

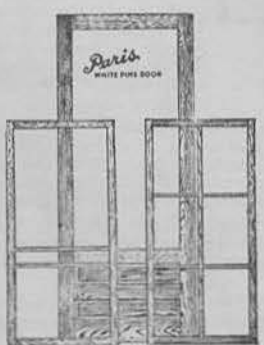
Easy sliding weatherproof frames of selected lumber. Lock from inside, cannot be closed from outside; 14-mesh Galvo-Grey wire cloth.

No.	High	Closed	Open
1024	10"	15"	24"
1028	10"	18"	28"
1036	10"	22"	36"
1044	10"	26"	44"
1236	12"	21"	36"
1422	14"	15"	22"
1428	14"	18"	28"
1432	14"	20"	32"
1436	14"	22"	36"
1444	14"	26"	44"
1460	14"	34"	60"
1828	18"	18"	28"
1836	18"	22"	36"
1844	18"	26"	44"
2236	22"	22"	36"
2244	22"	26"	44"
2460	24"	34"	60"

COMBINATION STORM AND SCREEN DOORS

The "All Year Round" Door.

A screen door in summer—a storm door in winter. Made for years of service; approximately 1 1/8 ins. thick; styles cut from 4-inch widths. Supplied with or without hardware or glass. In crates of 1/4 dozen.

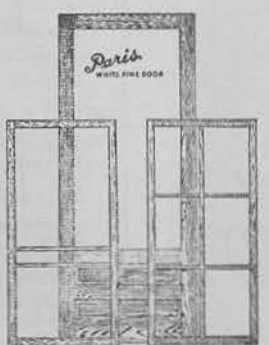


No. 70

6-Light Glass Storm Panel.

Interchangeable storm and screen panels. Grained, filled and varnished. With turn buttons to hold panels.

No.	Width	Height
70-B.	2' 8"	6' 8"
70-C.	2'10"	6'10"
70-D.	3'	7'



No. 92 White Pine

Two Coats of Spar Varnish.
6-Light Storm Panel.

Interchangeable storm and screen panels. Double lock dowel construction. Finished natural colour. With bronze screen.

No.	Width	Height
92-B.	2' 8"	6' 8"
92-C.	2'10"	6'10"
92-D.	3'	7'

SCREEN DOOR HARDWARE

Is fully shown in our complete Builders' Hardware Section of this issue.

See Page 437.

Paris Louvre

Metal; Adjustable.

WINDOW VENTILATORS

Interchangeable storm and screen panels. Double lock dowel construction. Finished natural colour. With bronze screen. Ideal for summer and winter use. Natural finish, easy sliding, hardwood frames. Deflector of heavy gauge sheet metal, green enamelled. Openings admit fresh air but exclude rain and snow; also prevent draught.

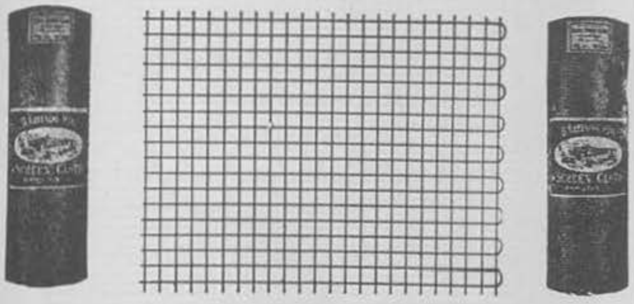
No.	High	Closed	Open
832	8"	20"	32½"
844	8"	26"	44½"

FLY SCREEN WIRE CLOTH

BLACK — GALVO-GREY — BRONZE

Made of selected steel wire; accurately and evenly woven; double selvedge; thoroughly coated; finely finished.

Sold in full rolls in lineal lengths as listed below.



Black Painted Wire Cloth

12 Mesh, 100 Foot Rolls. Per 100 Square Feet List **$3.65**

12 Mesh, 50 Foot Rolls. Per 100 Square Feet List **3.80**

Galvo-Grey Wire Cloth

12 Mesh, 100 Foot Rolls. Per 100 Square Feet List **4.15**

12 Mesh, 50 Foot Rolls. Per 100 Square Feet List **4.30**

14 Mesh, 100 Foot Rolls. Per 100 Square Feet List **4.80**

14 Mesh, 50 Foot Rolls. Per 100 Square Feet List **4.95**

Standard Bronze Rustless Wire Cloth

14 Mesh, 50 Foot Rolls. Per 100 Square Feet List **10.75**

14 Mesh, 100 Foot Rolls. Per 100 Square Feet List **10.75**

16 Mesh, 100 Foot Rolls. Per 100 Square Feet List **11.75**

All above wire cloth can be furnished in 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46 and 48 inch widths.

REGALVANIZED WIRE CLOTH

Furnished in Rolls, 24, 30 and 36 Inches Wide.

Mesh **4x4** **8x8**

SAND SCREEN Japanned

Weight per roll, 100 lineal feet

Mesh	2½	3	4	6	10	12
24 inch wide	..	95	85	..	..	.. lbs.
30 inch wide	90	107	100	80	60	50 lbs.
36 inch wide	115	150	125	107	82	60 lbs.

Moulders' Riddles

Made from foundry weight wire cloth of best quality.

Dia.	Wire	Mesh	Galv. Wire	Brass Wire
18″	No. 8	⅛″	**$24.00** doz.	**$33.00** doz.
18″	No. 4	¼″	**24.00** doz.	**33.00** doz.

Other sizes and meshes supplied on special order.

WEATHERSTRIP

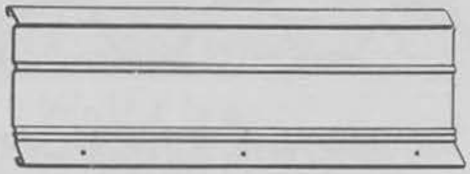
A SENSATIONAL NEW BRONZE

"The STORM KING"

Hemmed and Ribbed Bronze Strip

The STORM KING hemmed and ribbed weatherstrip incorporates all the advantages of the best bronze strips made anywhere. By comparison, the ordinary ribbon strip will seem obsolete, as there are so many important practical features to this new quality.

(1) Absolutely True—like a straightedge—no wavers, ripples or curvatures.
(2) Double bead by the tacking flange, allowing easy adjustment of spring tension without a slip.
(3) Regular 100% contact by the rolled hemmed contact edge.
(4) Eliminates humming and vibration.
(5) Smaller sizes will be used due to rigidity and perfect contact—and that's economy.



STORM KING BRONZE

Width	Shipping Weight 20½ ft. Boxes	100 ft. Boxes
1″	16 lb. doz.	6½ lb. ea.
1⅛″	17½ lb. doz.	7½ lb. ea.
1⅜″	20 lb. doz.	8½ lb. ea.

CLIMAX

GOOD QUALITY SIZED HAIR FELT

The Most Popular Weather-Strip in Canada

More sold than all others combined. Here is real value for quick selling. Now a heavier felt and larger package. A good economical quality. Well made and attractively packaged. Made in ¾″ width only.

No.	Length	Shipping Weights ½ Gross	Gross
C-10	10 ft.	11 lbs.	20 lbs.
C-12	12 ft.	12 lbs.	22 lbs.
C-15	15 ft.	13 lbs.	24 lbs.
C-20	20 ft.	17 lbs.	33 lbs.
C-22	22 ft.	19 lbs.	35 lbs.

TROJAN RIBBON BRONZE

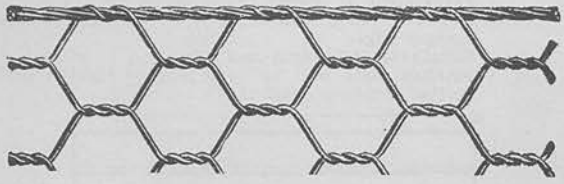
The Trojan Bronze is a better grade Ribbon Bronze, made with particular care and precision, and is guaranteed true and perfect in every respect. It replaces the former well known Monarch quality.

Width	Shipping Weight per Dozen 20½ ft. Boxes	100 ft. Boxes
¾″	10½ lbs.	46 lbs.
1″	14	56
1⅛″	14½	63
1¼″	16	72
1½″	18½	80
1¾″	21	94
2″	25	106

GALVANIZED NETTING

The name "Poultry" or "Chicken" netting is misleading, as while it was originally put on the market for the purpose implied, this serviceable netting is today used for innumerable purposes, such as fencing for lawn tennis and hand ball courts, fencing for lawns, flowerbeds, fox farms, trellises and even as reinforcement for concrete, etc., etc., hence we are designating our product as "GALVANIZED NETTING."

GALVANIZED HEXAGON NETTING



1/2 Inch Mesh of No. 22 Wire

Galvanized After Made

Widths in inches	24	30	36
List per roll of 150 lineal feet	$16.50	20.10	24.00
Weight per roll of 150 lineal feet in lbs.	37	50	55

3/4 Inch Mesh of No. 20 Wire

Galvanized After Made

Widths in inches	24	30	36
List per roll of 150 lineal feet	$10.50	12.75	15.00
Weight per roll of 150 lineal feet in lbs.	35	44	52

1-inch Mesh All Wires No. 20 Gauge

Price List Per Roll 1 Inch Mesh

ROLLS 150 LINEAL FEET

Widths in inches	12	18	24	30
List per roll of 150 lineal feet, No. 20 wire	$4.00	5.50	7.00	8.50
Weight per roll No. 20 wire in lbs.	17	28	37	45

Widths in inches	36	48	60	72
List per roll of 150 lineal feet, No. 20 wire	$10.00	14.00	17.00	20.00
Weight per roll No. 20 wire in lbs.	54	66	82	102

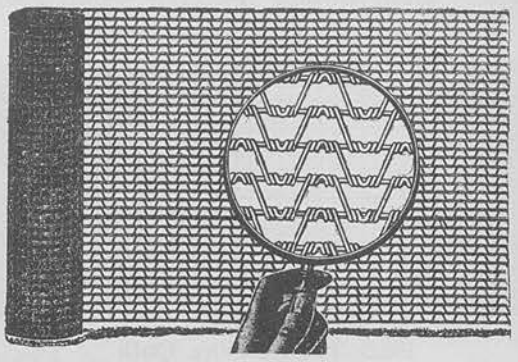
2 Inch Mesh All Wires No. 19 Gauge

Widths in inches	12	18	24	30	36	42
List per roll of 150 lineal feet	$1.80	2.65	3.40	4.00	4.75	5.50
Weight per roll of 150 lineal feet in lbs.	12	17	21	26	30	35

Widths in inches	48	60	72	84	96
List per roll of 150 lineal feet	$6.20	7.70	9.20	10.50	12.00
Weight per roll of 150 lineal feet in lbs.	36	45	54	62	71

LAY FLAT POULTRY FENCE

2 Inch Mesh All Wires No. 19 Gauge



Widths in inches	12	18	24	30	36
List per roll of 150 lineal feet	$1.80	2.65	3.40	4.00	4.75
Weight per roll of 150 lineal feet in lbs.	12	17	21	26	30

Widths in inches	42	48	60	72
List per roll of 150 lineal feet	$5.50	6.20	7.70	9.20
Weight per roll of 150 lineal feet in lbs.	35	37	47	53

All our Galvanized Netting is made of best quality Steel Wire, galvanized before weaving, insuring a perfect coating of the wire. Not being soldered at the joints, it allows for expansion and contraction by heat and cold, thus maintaining its position at all seasons of the year.

Its principal uses are for garden and ornamental purposes, lawn tennis nets, poultry runs, bird and small animal cages, chicken coops, pigeon houses, rabbit hutches, aviaries, drying fish, glue, fruit, etc.

Weights given in these tables are approximate.

GALVANIZED NETTING HEAVY

For Fox and Animal Enclosures

Price List Per Roll 2 Inch Mesh

All Wires No. 16 Gauge

ROLLS OF 150 LINEAL FEET

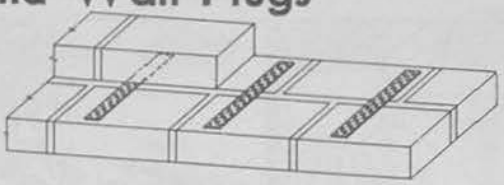
Widths in inches	12	18	24	30	36
List per roll of 150 lineal feet	$4.30	6.40	8.25	9.80	11.35
Weight per roll of 150 lineal feet in lbs.	27	37	50	60	70

Widths in inches	42	48	60	72
List per roll of 150 lineal feet	$13.00	14.50	18.00	21.00
Weight per roll of 150 lineal feet in lbs.	80	90	110	132

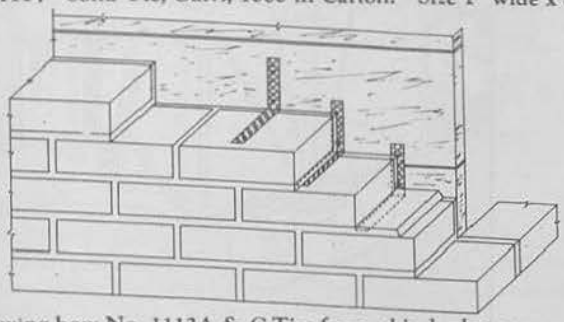
Pedlar's Wall Ties and Wall Plugs

No. 1112B—Solid Tie, Ptd. Red. 500 in Carton.
D—Solid Tie, Galv. (Light), 500 in Carton.
D—Solid Tie, Galv. (Heavy), 500 in Carton.

No. 1114—Solid Tie, Galv., 1000 in Carton. Size 1" wide x 8" long.



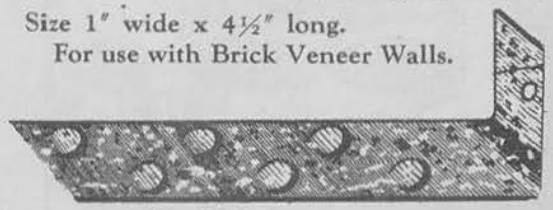
No. 1112B & D.
Showing how these Ties are used in solid brick.
Size—1" wide x 8" long.



Showing how No. 1112A & C Ties form a binder between sheathing and brick veneer.

No. 1112A—Veneer Tie, Ptd., 500 in carton.
C—Veneer Tie, Galv., 500 in carton.

Size 1" wide x 4½" long.
For use with Brick Veneer Walls.



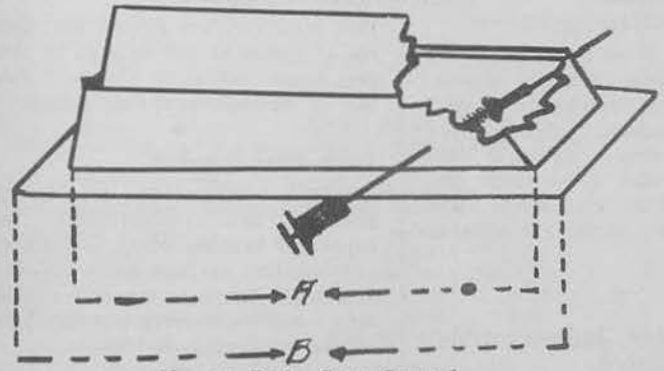
Wall Plugs

No. 1115A—Ptd. Wall Plug, 500 in Carton.
B—Galv. Wall Plug, 500 in Carton.

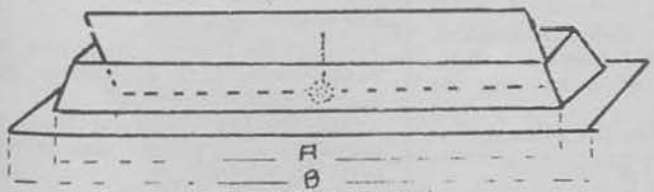
Opening large enough for 3 inch nail.
Standard nailing base for interior finish in brick and concrete construction.

FIREPLACE SPECIALTIES

DOME DAMPERS



No. 17 Rod—Gear Control



No. 19—Visible Control

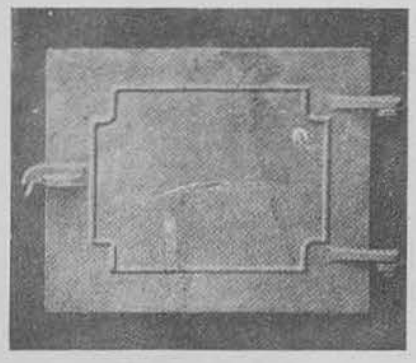
Specifications No. 17 and 19

A	24"	30"	36"
B	28"	34"	40"

Prices No. 17—28" Rod Control		$4.50
	34" Rod Control	5.50
	40" Rod Control	7.50
Prices No. 19—28" Visible Control		5.30
	34" Visible Control	6.50
	40" Visible Control	8.50

If larger dampers are required these can be furnished known as No. 12 with underslung control, 46" and 52" long.

CLEAN OUT DOOR

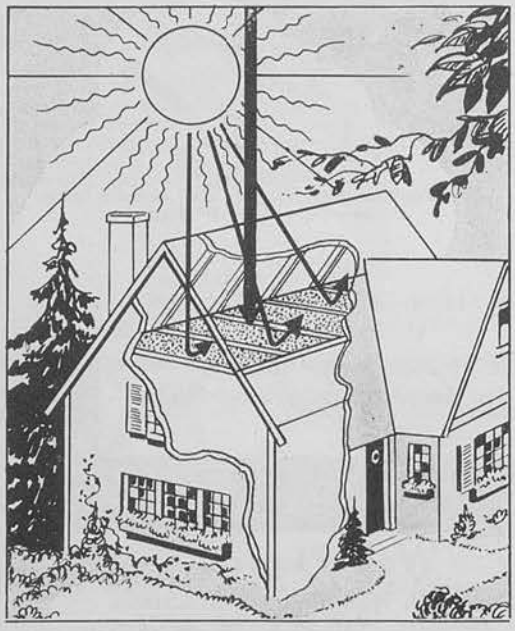


Size	To Fit Opening	Type	Price
6x9	4½ to 8	lift off	$ .60
9x9	8 to 8	lift off	.98
9x11	7 x9	hinge door	1.80
12x15	9¾ x12¾	hinge door	3.00

AUTOMATIC ASH DUMP

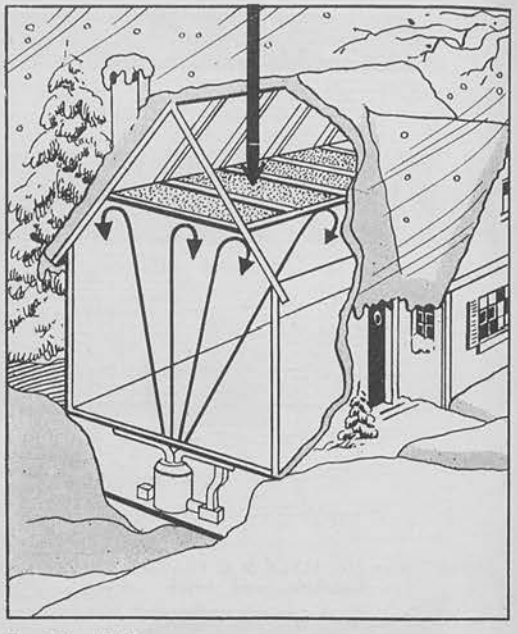
Size	Price
6" x 9"	$ .76

Atlas Mineral Wool Insulation



In the Summer

the heat of the sun cannot penetrate when the attic is insulated with Atlas Mineral Wool.



In the Winter

Atlas Mineral Wool insulation prevents heat from escaping, and keeps it inside the house.

DON'T let your roof tell the world that you are wasting expensive fuel. If the snow goes from your roof in midwinter, you may be sure that useful heat is escaping through it. Insulate with Atlas Mineral Wool. It will put a blanket around and over your home. This insulation allows the heat to do useful work inside instead of outside.

During the summer time you want to keep the hot rays of the sun outside. This is effected, too, by Atlas Mineral Wool insulation.

●

Easily Applied to All Types of Homes.

The first, most practical and economical way to insulate a home is to stop the heat loss through the roof by insulating the top floor ceiling. (See illustration.)

In homes already built, Atlas Mineral Wool can be packed into the walls and ceilings. In buildings under construction it is the general practice to install Atlas Mineral Wool Bats in both walls and ceiling.

Pays for Itself Within Three Years - Permanent Saving Thereafter.

Atlas Mineral Wool is not only the guardian of your family's health, but is also the watchdog of your fuel costs. Statistics prove that the cost of insulating a home is paid for within a very short time, due to the saving in fuel alone, and that permanent saving is effected thereafter.

●

Clean, Sanitary, Indestructible and Vermin-Proof.

Atlas Mineral Wool is clean to handle and is also vermin-proof. Atlas Mineral Wool will not disintegrate, has no odour and will not discolour plaster. It lasts as long (and longer) than the house.

●

Fire Resistant.

Atlas Mineral Wool positively will not burn, not because it has been fire-proofed, but because it is of mineral composition and therefore is inherently fireproof. Atlas Mineral Wool is a fire retardant and affords distinct protection against rapid spread of fire.

Saves 20% to 35% of Fuel Costs.

Test after test has proved that owners of insulated homes save in their fuel costs, not only the first year, but in all the years that follow.

●

Less Fuel Needed.

In a new home a considerably smaller, and consequently, less expensive heating plant is required, and the fuel savings alone will in a few years liquidate the cost of insulation and henceforth pay the home owner handsome dividends.

●

Packages.

Atlas Mineral Wool is packed in double paper bags 35 lbs., 40 lbs. each.

Atlas Granulated Mineral Wool is packed in double paper bags 40 lbs. each.

Atlas Mineral Wool Bats in two thicknesses as follows:—

Size of Bats 15" x 23" x 3 ⅝" to 4" thick. Packed 9 bats (21-9/16 sq. ft.) per carton. Weight of material 2,350 lbs. per 1,000 sq. ft.

Size of Bats 15" x 23" x 2" thick. Packed 15 bats (36 sq. ft.) per carton. Weight of material, 1,400 lbs. per 1,000 sq. ft.

FLOOR DRAINS AND TRAPS

BELL TRAP, LOOSE OR HINGED STRAINER

BELL TRAPS

Size	Loose Strainer	Hinged Strainer
4" x 4"	.65	
6" x 6"	.90	1.35
8" x 8"	1.65	2.00
9" x 9"	1.90	
10" x 10"	2.50	2.75
12" x 12"	2.75	

FLOOR DRAINS

Combination Floor Drains and Traps with outlets tapped for iron pipe, adapted for use in cement or concrete floors. The iron body can be furnished in galvanized to order.

Fig. 201

Fig. 202

Fig. 201—Hinged Strainer

Diameter of top.........inches	9	11	13
Depth inside ....inches	8	11	13
Outlet ....inches	2 or 3	3	4
With finished brass top and strainer ....each	14.25	21.00	24.00
With iron top and strainer..each	9.00	13.50	15.00
Weight, lbs.	*18*	*30*	*41½*

Fig. 202—Shallow Pattern

Diameter of top ....inches	8
Depth inside ....inches	6
Outlet ....inches	1¼, 1½ or 2
With finished brass top and strainer.each	10.75
With iron top and strainer.........each	7.50
Weight, lbs.	*15*

CAST IRON CESSPOOL

Fig. 218
Stable Cesspools
Extra Heavy

EXTRA HEAVY STABLE CESSPOOL
With Bell Trap

Size, inches	12x12	14x14	16x16
Fig. 218—			
To caulk into........	4"	4"	4"
Height over all.......	9¼"	9⅛"	11"
List price	7.50	8.00	11.25
Weight, lbs.	*36*	*44*	*70½*

Beveled Bibb Washers

Size Inches		I. D. Inches	O. D. Inches	Thick. Inches
¼	Small	5/32	½	¼
¼	Regular	3/16	9/16	7/32
¼	Large	3/16	19/32	7/32
⅜	Regular	3/16	⅝	7/32
⅜	Large	3/16	11/16	7/32
½	Regular	3/16	¾	7/32
½	Large	3/16	25/32	7/32
⅝	Regular	3/16	13/16	7/32
⅝	Large	3/16	27/32	¼
¾	Regular	3/16	29/32	¼
1	Regular	3/16	1⅛	11/32

Flat Bibb Washers

Size Inches		I. D. Inches	O. D. Inches	Thick. Inches
¼	Small	13/64	½	5/32
¼	Regular	13/64	9/16	⅛
¼	Large	13/64	19/32	⅛
⅜	Regular	13/64	⅝	⅛
⅜	Large	13/64	11/16	⅛
½	Regular	13/64	¾	⅛
½	Large	13/64	25/32	⅛
⅝	Regular	13/64	13/16	⅛
¾	Regular	13/64	⅞	⅛
1	Regular	13/64	1 3/64	⅛

Plumbers' Friends

Regular plumbers' friend with cup of good rubber.
Price, 4-inch Cup with 30-inch Handle ....each **$1.25**
" 6 " " " 30 " " .... " **2.00**

Rubber Tank Balls

Made of a high grade compound with a fine finish.

2¾" .... **$6.00** doz.

TRIPLE SEAL
TANK BALL
STOPS THE LEAKS
FOR FOUR YEARS

2½—2¾" ....**$12.00** doz.

HOT-SHOT

A high grade anti-freeze, will not rust radiator, will stand temperature changes with little evaporation.
Per Gallon (6 to case) ....**List $1.40**

GALVANIZED SHEETS

U.S. Gauge	Size	Pounds Sheet
10¾ oz.	30 x 120	16.80
	36 x 120	20.16
	36 x 96	16.13
	30 x 96	13.44
28 Ga.	36 x 120	23.44
	30 x 120	19.53
	36 x 96	18.75
	30 x 96	15.62
26 Ga.	36 x 120	27.19
	30 x 120	22.66
	36 x 96	21.75
	30 x 96	18.12
24 Ga.	36 x 120	34.69
	30 x 120	28.91
	36 x 96	27.75
	30 x 96	23.12
22 Ga.	36 x 120	42.19
	30 x 120	35.16
	36 x 96	33.75
	30 x 96	28.12
20 Ga.	36 x 120	49.69
	30 x 120	41.41
	36 x 96	39.75
	30 x 96	33.12
18 Ga.	36 x 120	64.69
	30 x 120	53.91
	36 x 96	51.75
	30 x 96	43.12
16 Ga.	36 x 120	79.69
	30 x 120	66.41
	36 x 96	63.75
	30 x 96	53.12
14 Ga.	30 x 96	65.62

CANADA PLATE
Blued and Oiled

Sheets	Size	Weight
52	18 x 24	115
60	18 x 21	115

COKE TIN PLATES

Gauge Symbol	Base Weight	Nearest U.S. Gauge	Decimal Thickness	Size	Sheets Per Box
1C	107	30	.012	20x28	112

SHEETS—HOT ROLLED ANNEALED

U.S. Gauge	Size	Pounds Sheet
28 Ga.	36 x 120	18.8
	30 x 120	15.6
	36 x 96	15.0
	30 x 96	12.5
26 Ga.	36 x 120	22.5
	30 x 120	18.8
	36 x 96	18.0
	30 x 96	15.0
24 Ga.	36 x 120	30.0
	30 x 120	25.0
	36 x 96	24.0
	30 x 96	20.0
22 Ga.	36 x 120	37.5
	30 x 120	31.3
	36 x 96	30.0
	30 x 96	25.0
20 Ga.	36 x 120	45.0
	30 x 120	37.5
	36 x 96	36.0
	30 x 96	30.0
18 Ga.	36 x 120	60.0
	30 x 120	50.0
	36 x 96	48.0
	30 x 96	40.0

SHEETS—HEAVY HOT ROLLED

16 Ga.	36 x 120	75.0
	30 x 120	62.5
	36 x 96	60.0
	30 x 96	50.0
	42 x 120	87.5
	48 x 120	100.0
14 Ga.	36 x 120	93.8
	30 x 120	78.1
	36 x 96	75.0
	30 x 96	62.5
	42 x 120	109.4
	48 x 120	125.0
12 Ga.	36 x 120	131.3
	30 x 120	109.4
	36 x 96	105.0
	30 x 96	87.5
	42 x 120	153.1
	48 x 120	175.0
10 Ga.	36 x 120	168.8
	30 x 120	140.6
	36 x 96	135.0
	30 x 96	112.5
	48 x 120	225.0

The sizes listed on this page are carried in stock available for immediate delivery. Information regarding other sizes furnished on request.

Cold Finished Steel

Effective October 1, 1935

Net Extras for Size

Squares

Thickness Inches	Extras per 100 Pounds	Thickness Inches	Extras per 100 Pounds	Thickness Inches	Extras per 100 Pounds
1/4 to 5/16	2.50	1/2 to 5/8	1.30	1 3/8 to 2	$1.25
3/8 to 7/16	$1.75	11/16 to 1 5/16	1.05	2 1/16 to 3	2.00

Hexagons

1/4 to 5/16	2.50	11/16 to 13/16	.60	1 15/16 to 2 3/16	$.75
3/8	1.75	7/8 to 15/16	.55	2 1/4 to 2 3/4	1.00
7/16	1.25	1 to 1 1/16	.50	.....	....
1/2	.90	1 1/8 to 1 1/4	.45	.....	....
9/16	.80	1 5/16 to 1 7/16	.50	.....	....
5/8	.70	1 1/2 to 1 7/8	.60	.....	....

Flats

Thickness Inches	Extras, per 100 Pounds — Width, Inches: 1/4	5/16 to 1/2	9/16 to 23/32	3/4 to 1	1 1/16 to 1 1/2	1 9/16 to 3	Wider than 3
1/8 and 5/32	$8.50	$6.50	$5.50	$4.50	$3.50	$3.00	$3.50
3/16 to 5/16	7.75	5.75	5.25	3.75	2.75	1.75	3.00
3/8 to 7/16	....	4.75	4.25	2.75	2.75	1.75	2.50
1/2 to 9/16	....	....	3.25	1.75	1.75	1.50	2.50
5/8 to 11/16	....	....	2.75	1.50	1.50	1.50	2.50
3/4 to 15/16	....	....	....	1.50	1.50	1.50	2.50
1 to 1 7/16	....	....	....	....	1.50	1.50	2.50
1 1/2 to 1 11/16	....	....	....	....	....	1.50	2.50
1 3/4 to 1 15/16	....	....	....	....	....	1.50	2.50
2 to 2 15/16	....	....	....	....	....	1.50	2.50

Extras for Cutting to Exact Lengths

Length Inches	Rounds, Squares, Hexagons per 100 Lbs.	Flats per 100 Lbs.
3 to 5 15/16	$2.00	$5.00
6 to 11 15/16	1.00	2.50
12 to 23 15/16	.40	1.00
24 to 35 15/16	.30	.75
36 to 119 15/16	.20	.30
Over 24 Feet and Less than 30 Feet	.50	.50
30 Feet and Less than 35 Feet	1.00	1.00
35 Feet and Less than 40 Feet	1.50	1.50
40 Feet and Less than 45 Feet	2.00	2.00
45 Feet and Longer	2.50	2.50

Squares and hexagons 1-inch and smaller, flats 1½x½-inch and thinner, 120 to 287 15/16 inches, are furnished with sheared ends.

When furnished with one or both ends machine cut (lathe saw), the following extras apply:

Squares & Hexagons, 3/4 Inch and Smaller	per 100 lbs.	$.15
Squares & Hexagons, 13/16 to 1 1/8 Inch Incl.	per 100 lbs.	.10
Flats, 1½x½-Inch and Thinner	per 100 lbs.	.10

When furnished in coils, deduct 15 cents per 100 pounds from net price.

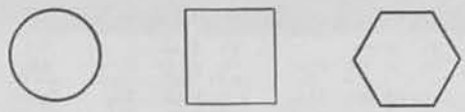
It is understood that the buyer will accept shorts up to 10 per cent, not less than 5 feet in length for screw steel and other grades used for automatic screw machine work in squares and hexagons 5/8-inch and smaller.

Quantity Extras

All specifications for less than 10000 pounds of a size and grade released for shipment at one time to one destination are subject to the extras below.

Less than 300 Pounds	per 100 pounds	$3.00
300 to 499 Pounds	per 100 pounds	2.25
500 to 999 Pounds	per 100 pounds	1.50
1000 to 1499 Pounds	per 100 pounds	.90
1500 to 1999 Pounds	per 100 pounds	.60
2000 to 3999 Pounds	per 100 pounds	.40
4000 to 5999 Pounds	per 100 pounds	.20
6000 to 9999 Pounds	per 100 pounds	.10
10000 pounds and over	per 100 pounds	No Extra

Weights of Round, Square and Hexagon Cold Finished Steel



Round: Size of Shaft Inches	Weight per Foot Pounds	Size of Shaft Inches	Weight per Foot Pounds	Size of Shaft Inches	Weight per Foot Pounds	Square: Size of Shaft Inches	Weight per Foot Pounds
3/16	.09	1 5/32	3.57	3 1/16	25.04	3/16	.119
7/32	.13	1 3/16	3.77	3 1/8	26.08	1/4	.213
1/4	.17	1 7/32	3.97	3 3/16	27.14	9/32	.270
5/16	.26	1 1/4	4.17	3 1/4	28.21	5/16	.332
11/32	.31	1 9/32	4.38	3 5/16	29.30	11/32	.405
3/8	.37	1 5/16	4.60	3 3/8	30.42	3/8	.479
13/32	.44	1 3/8	5.05	3 7/16	31.56	7/16	.652
7/16	.51	1 13/32	5.28	3 1/2	32.72	1/2	.850
15/32	.59	1 7/16	5.52	3 9/16	33.90	9/16	1.08
1/2	.67	1 15/32	5.76	3 5/8	35.10	5/8	1.33
17/32	.75	1 1/2	6.01	3 11/16	36.32	11/16	1.67
9/16	.84	1 9/16	6.52	3 3/4	37.56	3/4	1.91
19/32	.94	1 5/8	7.05	3 13/16	38.81	13/16	2.25
5/8	1.04	1 11/16	7.60	3 7/8	40.12	7/8	2.60
21/32	1.10	1 3/4	8.18	3 15/16	41.41	15/16	2.99
11/16	1.15	1 13/16	8.77	4	42.73	1	3.40
23/32	1.20	1 27/32	9.08	4 1/8	45.44	1 1/16	3.84
11/16	1.26	1 7/8	9.39	4 3/16	46.84	1 1/8	4.31
23/32	1.38	1 15/16	10.03	4 1/4	48.24	1 1/4	5.32
47/64	1.44	2	10.68	4 3/8	51.12	1 3/8	6.43
3/4	1.50	2 1/16	11.36	4 7/16	52.60	1 1/2	7.65
25/32	1.63	2 1/8	12.06	4 1/2	54.09	1 5/8	8.98
51/64	1.70	2 3/16	12.78	4 5/8	57.12	1 3/4	10.42
13/16	1.76	2 1/4	13.52	4 11/16	58.69	2	13.61
53/64	1.83	2 5/16	14.28	4 3/4	60.27	2 1/4	17.22
27/32	1.90	2 3/8	15.07	4 7/8	63.46	2 1/2	21.26
7/8	2.04	2 7/16	15.87	4 15/16	65.12	2 3/4	25.72
29/32	2.19	2 1/2	16.69	5	66.77	3	30.61
59/64	2.28	2 9/16	17.54	5 1/4	73.60	3 1/4	35.93
15/16	2.35	2 5/8	18.40	5 1/2	80.80	3 1/2	41.67
31/32	2.51	2 11/16	19.29	5 3/4	88.29	3 3/4	47.84
1	2.67	2 3/4	20.20	6	96.13	4	54.42
1 1/32	2.84	2 13/16	21.13	6 1/4	104.31	...	.....
1 1/16	3.01	2 7/8	22.08	6 1/2	112.82	...	.....
1 3/32	3.19	2 15/16	23.05	6 3/4	121.67	...	.....
1 1/8	3.38	3	24.04	7	130.84	...	.....

Hexagon: Size of Shaft Inches	Weight per Foot Pounds	Size of Shaft Inches	Weight per Foot Pounds	Size of Shaft Inches	Weight per Foot Pounds
1/4	.184	1 1/4	4.60	2 1/4	14.85
5/16	.29	1 5/16	5.07	2 5/16	15.80
3/8	.43	1 3/8	5.57	2 3/8	16.58
7/16	.56	1 7/16	6.07	2 7/16	17.50
1/2	.73	1 1/2	6.62	2 1/2	18.37
9/16	.93	1 9/16	7.17	2 9/16	19.35
5/8	1.15	1 5/8	7.76	2 5/8	20.25
11/16	1.40	1 11/16	8.37	2 11/16	21.25
3/4	1.66	1 3/4	9.00	2 3/4	22.25
13/16	1.91	1 13/16	9.65	2 13/16	23.28
7/8	2.25	1 7/8	10.32	2 7/8	24.31
15/16	2.58	1 15/16	11.00	2 15/16	25.38
1	2.94	2	11.70	3	26.45
1 1/16	3.33	2 1/16	12.51	3 1/8	28.50
1 1/8	3.73	2 1/8	13.27	...	.....
1 3/16	4.15	2 3/16	14.08	...	.....

Cold Finished Round Steel Bars and Shafting

Effective October 1, 1935

Net Extras for Standard Sizes

Diam. In.	Wt. Lbs. per Ft.	Extras per 100 Lbs.	Diam. In.	Wt. Lbs. per Ft.	Extras per 100 Lbs.	Diam. In.	Wt. Lbs. per Ft.	Extras per 100 Lbs.
1/8	.042	$3.00	15/16	4.60	$.55	3 3/8	30.42	$.90
5/32	.065	3.00	1 3/8	5.05	.55	3 7/16	31.56	1.00
3/16	.094	2.00	1 13/32	5.28	.55	3 1/2	32.71	1.00
7/32	.128	2.00	1 7/16	5.52	.55	3 9/16	33.90	1.00
1/4	.167	1.25	1 1/2	6.01	.60	3 5/8	35.09	1.00
5/16	.261	1.00	1 9/16	6.52	.60	3 11/16	36.31	1.00
3/8	.376	.90	1 5/8	7.05	.60	3 3/4	37.56	1.00
7/16	.511	.90	1 11/16	7.60	.60	3 7/8	40.10	1.15
15/32	.587	.90	1 3/4	8.18	.60	3 15/16	41.40	1.15
1/2	.668	.85	1 13/16	8.77	.60	4	42.73	1.15
17/32	.754	.85	1 27/32	9.08	.60	4 3/16	46.83	1.25
9/16	.845	.85	1 7/8	9.39	.60	4 1/4	48.24	1.25
5/8	1.043	.70	1 15/16	10.02	.60	4 3/8	51.11	1.25
11/16	1.262	.60	2	10.68	.60	4 7/16	52.58	1.25
23/32	1.379	.60	2 1/16	11.36	.65	4 1/2	54.07	1.35
47/64	1.440	.60	2 1/8	12.06	.65	4 3/4	60.25	1.35
3/4	1.50	.60	2 3/16	12.78	.65	4 7/8	63.46	1.35
13/16	1.76	.55	2 1/4	13.52	.65	4 15/16	65.10	1.45
53/64	1.83	.55	2 5/16	14.28	.65	5	66.76	1.45
27/32	1.90	.55	2 3/8	15.07	.65	5 1/4	73.60	1.45
7/8	2.04	.55	2 7/16	15.86	.65	5 3/8	.....	1.45
29/32	2.19	.55	2 1/2	16.39	.65	5 7/16	.....	1.95
59/64	2.27	.55	2 9/16	17.53	.80	5 1/2	80.77	1.95
15/16	2.35	.55	2 5/8	18.40	.80	5 3/4	88.29	1.95
31/32	2.51	.55	2 11/16	19.29	.80	5 7/8	92.17	1.95
1	2.67	.55	2 3/4	20.20	.80	5 15/16	94.14	2.40
1 1/32	2.84	.55	2 13/16	21.12	.80	6	96.14	2.40
1 1/16	3.01	.55	2 7/8	22.07	.80	.....	.....	.....
1 1/8	3.38	.55	2 15/16	23.04	.80	.....	.....	.....
1 5/32	3.57	.55	3	24.03	.80	.....	.....	.....
1 3/16	3.77	.55	3 1/16	25.04	.90	.....	.....	.....
1 7/32	3.97	.55	3 1/8	26.08	.90	.....	.....	.....
1 1/4	4.17	.55	3 3/16	27.13	.90	.....	.....	.....
1 9/32	4.38	.55	3 1/4	28.20	.90	.....	.....	.....

Extras for Cutting to Exact Lengths

Length inches	Rounds, Squares Hexagons per 100 Lbs.	Flats per 100 Lbs.
3 to 5 15/16	$2.00	$5.00
6 to 11 15/16	1.00	2.50
12 to 23 15/16	.40	1.00
24 to 35 15/16	.30	.75
36 to 119 15/16	.20	.30
Over 24 Feet and Less than 30 Feet	.50	.50
30 Feet and Less than 35 Feet	1.00	1.00
35 Feet and Less than 40 Feet	1.50	1.50
40 Feet and Less than 45 Feet	2.00	2.00
45 Feet and Longer	2.50	2.50

Rounds 1 1/8-inch and smaller, 120 to 287 15/16 inches, are furnished with sheared ends.

When furnished with one or both ends machine cut (lathe saw), the following extras apply:

Sizes 3/4-Inch and Smaller ..... per 100 lbs. $.15

Sizes 13/16 to 1 1/8-Inch, Incl ..... per 100 lbs. .10

When furnished in coils, deduct 15 cents per 100 pounds from the net price.

It is understood that the buyer will accept shorts up to 10 per cent, not less than 5 feet in length for screw steel and other grades used for automatic screw machine work in rounds 5/8-inch and smaller.

Quantity Extras

All specifications for less than 10,000 pounds of a size and grade released for shipment at one time to one destination are subject to these extras.

Less than 300 Pounds	per 100 pounds	$3.00
300 to 499 Pounds	per 100 pounds	2.25
500 to 999 Pounds	per 100 pounds	1.50
1000 to 1499 Pounds	per 100 pounds	.90
1500 to 1999 Pounds	per 100 pounds	.60
2000 to 3999 Pounds	per 100 pounds	.40
4000 to 5999 Pounds	per 100 pounds	.20
6000 to 9999 Pounds	per 100 pounds	.10
10000 Pounds and Over	per 100 pounds	No Extra

BARS—MERCHANT—New Billet

STEEL BARS AND SMALL SHAPES

FOR INTERMEDIATE SIZES THE NEXT HIGHER EXTRA TO BE CHARGED IN ALL CASES

ROUNDS AND SQUARES

Dimensions in inches	Extras per lb.	Dimensions in inches	Extras per lb.
47/64 to 1 1/2	BASE	1 9/16 to 2 1/16	0.10c
33/64 to 1 1/16	0.10c	2 1/8 to 2 1/2	0.15c
9/16	0.15c	2 9/16 to 3 1/16	0.20c
31/64 and 1/2	0.20c	3 1/8 to 4 9/16	0.25c
7/16	0.30c	4 5/8 to 5 1/16	0.35c
3/8	0.40c	5 1/8 to 5 9/16	0.45c
1/32	0.55c	5 5/8 to 6 1/8	0.55c
5/16	0.70c	6 1/4 to 6 9/16	0.65c
9/32	0.85c	6 5/8 to 7 1/2	0.75c
1/4	1.00c	7 9/16 to 7 3/4	0.85c
15/64	1.25c	7 13/16 to 8	1.10c
7/32	1.50c		
3/16	2.00c		

FLATS

Extras Per Pound — Width in Inches	4 to 3 1/16	3 to 2 1/16	2 to 1 1/16	1 to 13/16	Thickness in Inches: 3/8 to 1/2	7/16 to 3/8	1/16 to 1/4
3/8	.....	.....	.....	.....	.....	.....	1.40c
7/16	.....	.....	.....	.....	.....	1.00c	1.20c
1/2	.....	.....	.....	.....	.....	0.70c	0.90c
9/16	.....	.....	.....	.....	0.50c	0.50c	0.75c
5/8 to 11/16	.....	.....	.....	.....	0.40c	0.40c	0.60c
3/4 to 13/16	.....	.....	.....	.....	0.30c	0.30c	0.40c
7/8 to 15/16	.....	.....	.....	0.20c	0.20c	0.20c	0.30c
1 to 1 3/8	.....	.....	0.10c	BASE	BASE	BASE	0.15c
1 7/16 to 2	.....	.....	0.10c	BASE	BASE	BASE	0.15c
2 1/16 to 2 1/2	.....	0.20c	0.10c	BASE	BASE	BASE	0.15c
2 9/16 to 3	.....	0.25c	0.10c	BASE	BASE	BASE	0.15c
3 1/16 to 3 1/2	0.30c	0.25c	0.15c	BASE	BASE	BASE	0.15c
3 9/16 to 4	0.35c	0.25c	0.20c	BASE	BASE	BASE	0.15c
4 1/16 to 5	0.35c	0.25c	0.20c	BASE	BASE	BASE	0.15c
5 1/16 to 6	0.40c	0.30c	0.20c	BASE	BASE	BASE	0.15c

EQUAL LEG ANGLES

Dimensions in inches	Extras per lb.	Dimensions in inches	Extras per lb.
1 1/2 x 1 1/2 in. and wider, but under 3 in. wide x 3/16 in. and heavier	0.15c	7/8 x 7/8 in. x 3/16 in.	0.35c
		7/8 x 7/8 in. x 1/4 in.	0.40c
1 1/2 x 1 1/2 in. and wider, but under 3 in. wide x 1/4 in.	0.25c	3/4 x 3/4 in. x 3/16 in.	0.45c
		3/4 x 3/4 in. x 1/4 in.	0.60c
1 x 1 to 1 1/4 x 1 1/4 in. x 3/16 in. and heavier	0.25c	5/8 x 5/8 in. x 1/4 in.	1.50c
		5/8 x 5/8 in. x 3/32 in.	2.00c
1 x 1 to 1 1/4 x 1 1/4 in. x 1/4 in.	0.30c	1/2 x 1/2 in. x 1/4 in.	2.20c
		1/2 x 1/2 in. x less than 1/4 in.	2.50c

BANDS AND LIGHT FLATS

Width in Inches — SIZE EXTRAS — Extras per Lb.						
Decimal Equivalent in Inches	0.249 to 0.191	0.190 to 0.180	0.179 to 0.162	0.161 to 0.146	0.145 to 0.132	0.131 to 0.118
B.W.G. Gauge		7 and 3/16"	8	9	10	11 and 1/8"
1/2	1.05c	1.05c	1.05c	1.05c	1.10c	1.10c
9/16	0.85c	0.85c	0.85c	0.85c	0.90c	0.90c
5/8 to 11/16	0.70c	0.70c	0.70c	0.70c	0.75c	0.75c
3/4 to 13/16	0.55c	0.55c	0.55c	0.55c	0.60c	0.60c
7/8 to 15/16	0.45c	0.45c	0.45c	0.45c	0.50c	0.50c
1 to 1 3/8	0.35c	0.35c	0.35c	0.35c	0.40c	0.40c
1 7/16 to 2	0.30c	0.30c	0.30c	0.30c	0.35c	0.35c
2 1/16 to 2 1/2	0.25c	0.25c	0.25c	0.25c	0.30c	0.30c
2 9/16 to 3	0.20c	0.20c	0.20c	0.20c	0.25c	0.25c
3 1/16 to 3 1/2	0.15c	0.15c	0.15c	0.15c	0.20c	0.20c
3 9/16 to 4	0.15c	0.15c	0.15c	0.15c	0.20c	0.20c
4 1/16 to 5	0.10c	0.10c	0.10c	0.10c	0.15c	0.15c
5 1/16 to 6	0.10c	0.10c	0.10c	0.10c	0.15c	0.15c

QUANTITY EXTRAS

of a size one delivery one destination	Extras per lb.
Under 2,000 lbs. to 1,000 lbs.	0.25c
Under 1,000 lbs. to 500 lbs.	0.50c
Under 500 lbs. to 100 lbs.	1.00c
Under 100 lbs.	2.00c

BANDS—HOT ROLLED

Size in Inches	Weight Per Ft., Lbs.
1-8x ⅜	.1594
½	0.2125
⅝	0.2657
¾	0.319
⅞	0.372
1	0.425
1⅛	0.4782
1¼	0.531
1⅜	0.5844
1½	0.638
1¾	0.7438
2	0.8500
2¼	0.9563
2½	1.0625
2¾	1.169
3	1.275
3¼	1.381
3½	1.488
4	1.70
4½	1.913
5	2.125
5½	2.338
6	2.55
7	2.975
8	3.400

Size in Inches	Weight per Ft. Lbs.
3-16x ⅜	0.239
½	0.319
⅝	0.398
¾	0.478
⅞	0.558
1	0.638
1⅛	0.717
1¼	0.797
1⅜	0.877
1½	0.956
1⅝	1.036
1¾	1.12
2	1.28
2¼	1.43
2½	1.59
2¾	1.75
3	1.91
3¼	2.07
3½	2.23
4	2.55
4½	2.87
5	3.19
5½	3.51
6	3.83
7	4.46

FLATS—HOT ROLLED

Size in Inches	Weight per Ft. Lbs.
3-16 and lighter, see bands	
1-4x ⅜	0.319
½	0.425
⅝	0.531
¾	0.638
⅞	0.744
1	0.85
1⅛	0.956
1¼	1.06
1⅜	1.17
1½	1.28
1¾	1.49
2	1.70
2¼	1.91
2½	2.13
2¾	2.34
3	2.55
3¼	2.76
3½	2.98
3¾	3.19
4	3.40
4¼	3.61
4½	3.83
5	4.25
5½	4.68
6	5.10
5-16x ½	0.531
⅝	0.664
¾	0.797
⅞	0.93
1	1.06
1⅛	1.20
1¼	1.33
1⅜	1.46
1½	1.59
1¾	1.86
2	2.13
2¼	2.39
2½	2.66
2¾	2.92
3	3.19
3¼	3.45
3½	3.72
4	4.25
4½	4.78
5	5.31
5½	5.84
6	6.38

Size in Inches	Weight per Ft. Lbs.
3-8x ½	0.638
⅝	0.797
¾	0.956
⅞	1.12
1	1.28
1⅛	1.43
1¼	1.59
1⅜	1.75
1½	1.91
1⅝	2.07
1¾	2.23
2	2.55
2¼	2.87
2½	3.19
2¾	3.51
3	3.83
3¼	4.14
3½	4.46
4	5.10
4½	5.74
5	6.38
5½	7.01
6	7.65
7-16x ¾	1.12
⅞	1.30
1	1.49
1¼	1.86
1⅜	2.05
1½	2.23
1¾	2.60
2	2.98
2¼	3.35
2½	3.72
3	4.46
3½	5.21
4	5.95
6	8.93
1-2x ⅝	1.06
¾	1.28
⅞	1.49
1	1.70
1⅛	1.91
1¼	2.13
1⅜	2.34
1½	2.55
1⅝	2.76
1¾	2.98
2	3.40

FLATS—HOT ROLLED

Size in Inches	Weight Per Ft., Lbs.
1-2x 2¼	3.83
2½	4.25
2¾	4.68
3	5.10
3¼	5.53
3½	5.95
4	6.80
4½	7.65
5	8.50
5½	9.35
6	10.20
5-8x ¾	1.59
⅞	1.86
1	2.13
1⅛	2.39
1¼	2.66
1⅜	2.92
1½	3.19
1⅝	3.45
1¾	3.72
2	4.25
2¼	4.78
2½	5.31
2¾	5.84
3	6.38
3¼	6.91
3½	7.44
4	8.50
4½	9.56
5	10.63
5½	11.69
6	12.75
3-4x ⅞	2.23
1	2.55
1⅛	2.87
1¼	3.19
1⅜	3.51
1½	3.83
1⅝	4.15
1¾	4.46
2	5.10

Size in Inches	Weight per Ft. Lbs.
3-4x 2¼	5.76
2½	6.38
2¾	7.01
3	7.65
3¼	8.29
3½	8.93
4	10.20
4½	11.48
5	12.75
5½	14.03
6	15.30
7-8x1	2.98
1¼	3.72
1½	4.46
1¾	5.21
2	5.95
2¼	6.69
2½	7.44
2¾	8.18
3	8.93
3½	10.41
4	11.90
4½	13.39
5	14.88
5½	16.36
6	17.85
1 x1¼	4.25
1½	5.10
1¾	5.95
2	6.80
2¼	7.65
2½	8.50
1 x2¾	9.35
3	10.20
3¼	11.05
3½	11.90
4	13.60
4½	15.30
5	17.00
5½	18.70
6	20.40

ROUNDS—HOT ROLLED

Size in Inches	Weight Per Ft. Lbs.
3/16	0.094
¼	0.167
5/16	0.261
⅜	0.376
7/16	0.511
½	0.668
9/16	0.845
⅝	1.04
11/16	1.26
¾	1.50
13/16	1.76
⅞	2.04
15/16	2.35
1	2.67
1 1/16	3.01
1⅛	3.38
1¼	4.17
1 5/16	4.60
1⅜	5.05
1½	6.01
1⅝	7.05
1¾	8.18
1⅞	9.39

Size in Inches	Wt. Per Ft., Lbs.
2	10.68
2⅛	12.06
2¼	13.52
2⅜	15.06
2½	16.69
2⅝	18.40
2¾	20.20
2⅞	22.07
3	24.03
3⅛	26.08
3¼	28.21
3⅜	30.42
3½	32.71
3⅝	35.09
3¾	37.55
3⅞	40.09
4	42.74
4⅛	45.44
4¼	48.23
4⅜	51.10
4½	54.08
4⅝	57.12
4¾	60.25
5	66.76
5¼	73.60
5½	80.78

Size in Inches	Weight Per Ft. Lbs.
5¾	88.29
6	96.13
6⅛	100.18
6¼	104.31
6½	112.82
6⅝	117.20
6¾	121.67
7	130.85
7⅛	135.56
7¼	140.36
7½	150.21
8	170.90

HALF ROUNDS HOT ROLLED

Size in Inches	Wt. Per Ft., Lbs.	Size in Inches	Weight per Ft. Lbs.	Size in Inches	Wt. Per Ft., Lbs.
3/8	.188	7/8	1.022	1 3/4	4.089
1/2	.334	1	1.335	2	5.340
5/8	.522	1 1/4	2.086	2 1/2	8.345
3/4	.751	1 1/2	3.004	3	12.015

HALF OVALS HOT ROLLED

Size in Inches	Wt. Per Ft. Lbs.	Size in Inches	Wt. Per Ft., Lbs.
3/8 x 3/32	.084.	1 1/4 x 5/16	.928
1/2 x No. 12	.128	1 1/2 x 5/16	1.099
1/2 x 1/8	.149	1 1/2 x 3/8	1.337
5/8 x 5/32	.232	1 3/4 x 7/16	1.820
5/8 x 3/16	.284	2 x 3/4	1.747.
3/4 x 3/16	.334.	2 x 7/16	2.060
3/4 x 1/4	.460	2 x 1/2	2.380
7/8 x 7/32	.455	2 1/2 x 1/2	2.920
7/8 x 1/4	.527	2 1/2 x 5/8	3.713
1 x 1/4	.594	3 x 5/8	4.394
1 1/8 x 5/16	.843.	3 x 3/4	5.347.

ANGLES—BAR SIZES

Size in Inches	Weight per Ft. Lbs.	Size in Inches	Weight per Ft. Lbs.
1/2 x 1/2 x 1/8	.38	2 1/2 x 2 1/2 x 1/8	2.08
5/8 x 5/8 x 1/8	.48	3/16	3.07
3/4 x 3/4 x 1/8	.59	1/4	4.10
3/4 x 3/4 x 3/16	.84	5/16	5.00
7/8 x 7/8 x 1/8	.70	3/8	5.90
1 x 5/8 x 1/8	.64	1/2	7.70
1 x1 x 1/8	.80	3 x2 x 3/16	3.07.
3/16	1.16	1/4	4.1
1/4	1.49	5/16	5.0
1 1/8 x1 1/8 x 1/8	.91	3/8	5.9
1 1/4 x1 1/4 x 1/8	1.01	1/2	7.7
3/16	1.48	3 x2 1/2 x 3/16	3.39.
1/4	1.92	1/4	4.5
1 3/8 x 7/8 x 1/8	.91	5/16	5.6
3/16	1.32	3/8	6.6
1 1/2 x1 1/4 x 3/16	1.64	1/2	8.5
1 1/2 x1 1/2 x 1/8	1.23	3 x3 x 1/8	2.5
3/16	1.80	3/16	3.71
1/4	2.34	1/4	4.9
5/16	2.86	5/16	6.1
3/8	3.35	3/8	7.2
1 3/4 x1 3/4 x 1/8	1.44	7/16	8.3
3/16	2.12	1/2	9.4
1/4	2.77	5/8	11.5
5/16	3.39	3 1/2 x2 1/2 x 1/4	4.9
2 x1 1/4 x 3/16	1.96	5/16	6.1
1/4	2.55	3/8	7.2
2 x1 1/2 x 1/8	1.44	1/2	9.4
3/16	2.12	5/8	11.5
1/4	2.77	3 1/2 x3 x 1/4	5.4
5/16	3.39	5/16	6.6
2 x2 x 1/8	1.65	3/8	7.9
3/16	2.44	1/2	10.2
1/4	3.19	3 1/2 x3 1/2 x 1/4	5.8
5/16	3.92	5/16	7.2
3/8	4.70	3/8	8.5
1/2	6.00	7/16	9.8
2 1/4 x2 1/4 x 1/8	1.86	1/2	11.1
3/16	2.75	5/8	13.6
1/4	3.62	4 x3 x 1/4	5.8
5/16	4.50	5/16	7.2
2 1/2 x1 1/2 x 3/16	2.44	3/8	8.5
1/4	3.19	7/16	9.8
2 1/2 x2 x 1/8	1.86	1/2	11.1
3/16	2.75	5/8	13.6
1/4	3.62	3/4	16.0
5/16	4.50	4 x3 1/2 x 1/4	6.2
3/8	5.30	5/16	7.7
1/2	6.74	3/8	9.1

SQUARES—HOT ROLLED

Size in Inches	Wt. Per Ft., Lbs.	Size in Inches	Wt. Per Ft., Lbs.	Size in Inches	Wt. Per Ft., Lbs.
1/4	0.213	1	3.400	2 3/4	25.71
5/16	0.332	1 1/8	4.303	3	30.60
3/8	0.478	1 1/4	5.313	3 1/4	35.91
7/16	0.651	1 3/8	6.428	3 1/2	41.65
1/2	0.850	1 1/2	7.650	3 3/4	47.81
9/16	1.076	1 5/8	8.978	4	54.40
5/8	1.328	1 3/4	10.41	4 1/2	68.85
11/16	1.607	1 7/8	11.95	5	85.00
3/4	1.913	2	13.60	6	122.40
13/16	2.240	2 1/4	17.21		
7/8	2.603	2 1/2	21.25		

CHANNELS—BAR SIZES

Size in Inches	Weight per Ft. Lbs.	Size in Inches	Weight Per Ft. Lbs.
1/2 x 1/4 x 3/32	.25	1 1/2 x 1/2 x 3/16	1.36
1/2 x 1/4 x 1/8	.28	1 1/2 x 3/16 x 1/4	1.68
5/8 x 1/8 x 1/8	.41	1 1/2 x 5/8 x 3/16	1.47
3/4 x 1/16 x .065	.30	1 1/2 x 3/4 x 1/8	1.17
3/4 x 1/8 x 1/8	.50	1 1/2 x 1 1/2 x 3/16	2.63
3/4 x 1 1/2 x 3/32	.40	1 3/4 x 1/2 x 3/16	1.55
3/4 x 3/8 x No. 15	.40	1 3/4 x 5/8 x 1/8	1.33
3/4 x 3/8 x 1/8	.52	2 x 1/2 x 1/8	1.26
7/8 x 3/8 x 1/8	.584	2 x 5/16 x 1/16	1.76
7/8 x 7/16 x 1/8	.63	2 x 5/8 x 3/16	1.98
1 x 3/8 x .079	.41	2 x 5/8 x 1/4	2.18
1 x 5/8 x 1/8	.68	2 x1 x 1/8	1.78
1 x 1/2 x 1/8	.83	2 x1 x 3/16	2.32
1 1/8 x 1/8 x 1/8	1.12	2 x1 x 3/16	2.60
1 1/4 x 1/2 x 1/8	.93	2 1/2 x 5/8 x 3/16	2.27
1 1/4 x 1/2 x 3/16	1.18	2 1/2 x 1 1/8 x 1/4	2.80
1 1/2 x 1/2 x 1/8	1.12		

CHANNELS—STRUCTURAL

Depth of Channel Inches	Weight Per Ft. Lbs.	Thickness of Web	Width of Flange Inches
3	4.1	0.170	1.410
	5	0.258	1.498
	6	0.356	1.596
4	5.4	0.180	1.580
	6.25	0.247	1.657
	7.25	0.320	1.720
5	6.7	0.190	1.750
	9	0.325	1.885
	11.50	0.472	2.032
6	8.2	0.200	1.920
	10.50	0.314	2.034
	13	0.437	2.157
	15.50	0.559	2.279
7	9.8	0.210	2.090
	12.25	0.314	2.194
	14.75	0.419	2.299
	17.25	0.524	2.404
	19.75	0.629	2.509
8	11.5	0.220	2.260
	13.75	0.303	2.343
	16.25	0.395	2.435
	18.75	0.487	2.527
	21.25	0.579	2.619
9	13.4	0.230	2.430
	15	0.285	2.485
	20	0.448	2.648
	25	0.612	2.812
10	8.4	0.170	1.500
	15.3	0.240	2.600
	20	0.379	2.739
	25	0.526	2.886
	30	0.673	3.033
	35	0.820	3.180

WEIGHTS OF STEEL GAUGES

U. S. Standard Gauge No.	Approx. Thickness in Ins.	Weight per Sq. Foot Steel	Birmingham Wire Ga. No.	Thickness in Ins.	Weight per Sq. Foot Steel
3	.2391	10.	3	.259	10.5672
4	.2242	9.375	4	.238	9.7104
5	.2092	8.75	5	.22	8.976
6	.1943	8.125	6	.203	8.2824
7	.1793	7.5	7	.18	7.344
8	.1644	6.875	8	.165	6.732
9	.1494	6.25	9	.148	6.0384
10	.1345	5.625	10	.134	5.4672
11	.1196	5.	11	.12	4.896
12	.1046	4.375	12	.109	4.4972
13	.0897	3.75	13	.095	3.876
14	.0747	3.125	14	.083	3.3864
15	.0673	2.8125	15	.072	2.9376
16	.0598	2.5	16	.065	2.651
17	.0538	2.25	17	.058	2.3664
18	.0478	2.	18	.049	1.9992
19	.0418	1.75	19	.042	1.7126
20	.0359	1.50	20	.035	1.428
21	.0329	1.375	21	.032	1.3056
22	.0299	1.25	22	.028	1.1424
23	.0269	1.125	23	.025	1.02
24	.0239	1.	24	.022	.8976
25	.0209	.875	25	.02	.816
26	.0179	.75	26	.018	.7344
27	.0164	.6875	27	.016	.6528
28	.0149	.625	28	.014	.5712
29	.0135	.5625	29	.013	.5304
30	.0120	.5	30	.012	.4890

Approximate Weights of Various Metals

To find the weight of various metals, multiply the contents in cubic inches by the number shown below; the result will be the approximate weight in pounds.

Iron ..... .27777	Brass .... .3112	Tin ..... .26562
Steel .... .28332	Lead .... .41015	Aluminum .09375
Copper .. .32118	Zinc ..... .25318	

STEEL BARS—Flats and Squares. To find the approximate weight per lineal foot of bar, multiply width times thickness times 10 and divide by 3. Example: (½ in. x 6 in. flat)—½x6x10 divided by 3 gives 10 lbs. per foot. (Actual is 10.2 lbs.)

Rounds. To find the approximate weight per lineal foot of bar, multiply the diameter times the diameter times 8 and divide by 3. Example: (2 in. round)—2x2x8 divided by 3 gives 10.67 lbs. per ft. (Actual is 10.68 lbs.)

Decimal Equivalents of Parts of an Inch

Fraction	Decimal	Fraction	Decimal	Fraction	Decimal
1/64	.01563	23/64	.35938	45/64	.70313
1/32	.03125	3/8	.375	23/32	.71875
3/64	.04688	25/64	.39063	47/64	.73438
1/16	.0625	13/32	.40625	3/4	.75
5/64	.07813	27/64	.42188	49/64	.76563
3/32	.09375	7/16	.4375	25/32	.78125
7/64	.10938	29/64	.45313	51/64	.79688
1/8	.125	15/32	.46875	13/16	.8125
9/64	.14063	31/64	.48438	53/64	.82813
5/32	.15625	1/2	.5	27/32	.84375
11/64	.17188	33/64	.51563	55/64	.85938
3/16	.1875	17/32	.53125	7/8	.875
13/64	.20313	35/64	.54688	57/64	.89063
7/32	.21875	9/16	.5625	29/32	.90625
15/64	.23438	37/64	.57813	59/64	.92188
1/4	.25	19/32	.59375	15/16	.9375
17/64	.26563	39/64	.60938	61/64	.95313
9/32	.28125	5/8	.625	31/32	.96875
19/64	.29688	41/64	.64063	63/64	.98438
5/16	.3125	21/32	.65625	1	1.00000
21/64	.32813	43/64	.67188	...	.....
11/32	.34375	11/16	.6875	...	.....

STANDARD GAUGES

United States Standard Gauge is used for all iron and steel sheets. Birmingham Wire Gauge is used for plates, hoops and bands, strip steel, spring steel, boiler tubes, and tank rivets. Round Wire is rolled to Washburn and Moen Gauge. The U. S. Standard Gauge is a weight gauge and not a thickness gauge. For instance, number 20 U. S. Gauge weighs 1.5 lbs. per square foot subject to the standard allowable variation. Weight always is the determining factor. The fact that it is .037 inches thick is secondary.

EQUIVALENTS IN DECIMALS OF AN INCH

No. of Gauge	Thickness in Decimals of an Inch							
	Birmingham Wire (B.W.G.) also Stubs Iron Wire	Browne & Sharpe or American Wire	United States Standard Plate Iron and Steel	British Imper. Stand. Wire (SWG)	Stand. Steel Wire Gauge or Washburn & Moen	Trenton Iron Co.	Stubs Steel Wire	Paris Gauge (J. de P.)
7-0's	.....	.....	.....	.500	.....	.....	....	.....
6-0's	.....	.580	.....	.464	.....	.....	....	.....
5-0's	.....	.5165	.....	.432	.....	.45	....	.....
4-0's	.454	.46	.....	.400	.3938	.40	....	.....
3-0's	.425	.40964	.....	.372	.3625	.36	....	.....
2-0's	.380	.3648	.....	.348	.3310	.33	....	.0157
0	.340	.32486	.....	.324	.3065	.305	....	.0196
1	.300	.2893	.....	.300	.2830	.285	.227	.0236
2	.284	.25763	.....	.276	.2625	.265	.219	.0275
3	.259	.22942	.2391	.252	.2437	.245	.212	.0314
4	.238	.20431	.2242	.232	.2253	.225	.207	.0354
5	.220	.18194	.2092	.212	.2070	.205	.204	.0393
6	.203	.16202	.1943	.192	.1920	.190	.201	.0433
7	.180	.14428	.1793	.176	.1770	.175	.199	.0472
8	.165	.12849	.1644	.160	.1620	.160	.197	.0512
9	.148	.11443	.1494	.144	.1483	.145	.194	.0551
10	.134	.10189	.1345	.128	.1350	.130	.191	.0590
11	.120	.090742	.1196	.116	.1205	.1175	.188	.0630
12	.109	.080808	.1046	.104	.1055	.1050	.185	.0708
13	.095	.071961	.0897	.092	.0915	.0925	.182	.0787
14	.083	.064084	.0747	.080	.0800	.0800	.180	.0866
15	.072	.057068	.0673	.072	.0720	.0700	.178	.0944
16	.065	.05082	.0598	.064	.0625	.0610	.175	.1062
17	.058	.045257	.0538	.056	.0540	.0525	.172	.1181
18	.049	.040303	.0478	.048	.0475	.0450	.168	.1388
19	.042	.03589	.0418	.040	.0410	.0400	.164	.1535
20	.035	.031961	.0359	.036	.0348	.0350	.161	.1732
21	.032	.028462	.0329	.032	.03175	.0310	.157	.1929
22	.028	.025347	.0299	.028	.0286	.0280	.155	.2126
23	.025	.022571	.0269	.024	.0258	.0250	.153	.2322
24	.022	.0201	.0239	.022	.0230	.0225	.151	.2520
25	.020	.0179	.0209	.020	.0204	.0200	.148	.2756
26	.018	.01594	.0179	.018	.0181	.0180	.146	.2914
27	.016	.014195	.0164	.0164	.0173	.0170	.143	.3228
28	.014	.012641	.0149	.0148	.0162	.0160	.139	.3462
29	.013	.011257	.0135	.0136	.0150	.0150	.134	.3700
30	.012	.010025	.0120	.0124	.0140	.0140	.127	.3937
31	.010	.008928	.....	.0116	.0132	.0130	.120	.....
32	.009	.00795	.....	.0108	.0128	.0120	.115	.....
33	.008	.00708	.....	.0100	.0118	.0110	.112	.....
34	.007	.006304	.....	.0092	.0104	.0100	.110	.....
35	.005	.005614	.....	.0084	.0095	.0095	.108	.....
36	.004	.005	.....	.0076	.0090	.0090	.106	.....
37	.....	.004453	.....	.0068	.....	.0085	.103	.....
38	.....	.003965	.....	.0060	.....	.0080	.101	.....
39	.....	.003531	.....	.....	.....	.0075	.099	.....
40	.....	.003144	.....	.....	.....	.0070	.097	.....

WEIGHTS OF IRON AND STEEL PLATE

POUNDS PER SQUARE FOOT

Thickness	Iron—Estimating	Steel—Estimating	Steel—Theoretical	Thickness	Iron—Estimating	Steel—Estimating	Steel—Theoretical
1/4	10.25	10.40	10.200	1 1/4	28.25	29.00	28.05
5/16	12.70	12.75	12.750	1 5/16	30.75	31.50	30.60
3/8	15.00	15.10	15.300	1 3/8	33.50	34.00	33.15
7/16	17.40	17.50	17.850	1 7/16	36.00	36.75	35.70
1/2	20.75	20.90	20.400	1 1/2	38.50	39.25	38.25
9/16	23.10	23.30	22.950	1 9/16	41.00	41.75	40.80
5/8	25.50	25.75	25.500	1 5/8	43.50	44.50	43.35
11/16	28.00	28.00	28.050	1 11/16	46.00	46.75	45.90
3/4	30.00	30.25	30.600	1 3/4	48.50	49.50	48.45
13/16	33.25	33.50	33.150	1 13/16	51.00	52.00	51.00
7/8	35.50	35.75	35.700	1 7/8	53.50	54.50	53.55
15/16	38.00	38.25	38.250	1 15/16	56.00	57.25	56.10
1	40.50	40.80	40.800	2	58.50	60.00	58.65
1 1/16	43.25	43.35	43.350	2 1/16	61.00	62.50	61.20
1 1/8	45.75	45.90	45.900	2 1/8	66.25	67.75	66.30
1 3/16	48.25	48.45	48.450	2 3/16	71.25	72.75	71.40
1 1/4	50.75	51.00	51.000	2 1/4	76.25	78.00	76.50
1 5/16	53.25	53.55	53.550	2 5/16	81.50	83.25	81.60

JESSCO CARBON DRILL ROD QUALITY

Jessco Drill Rod is noted throughout Canada for its excellence of quality, well annealed high grade steel with a beautiful highly polished finish, it represents the ultimate in present day cold finishing of high carbon Steel. Jessco Drill Rod is cold drawn and then fully finish ground and polished in the latest type centerless grinders thus assuring freedom from decarburization, and size accuracy.

Following prices are based on assorted regular sizes of a grade ordered at one time for shipment at one time.

		Under 100 lbs.	100 lbs. to 500 lbs.	Over 500 lbs.
1 1 2" to & Incl.	1/2"	.35 lb. net	.30 lb. net	.25lb.net
31 64" " " "	3/16"	.52 "	.45 "	.37 "
No. 12 " " "	1/8"	.58 "	.50 "	.42 "
No. 31 " " "	No. 38	.63 "	.54 "	.45 "
No. 39 " " "	No. 46	.74 "	.63 "	.52 "
5 64" " " "	No. 50	.84 "	.72 "	.60 "
No. 51 " " "	No. 54	1.00 "	.90 "	.78 "
No. 55 " " "	No. 57	1.10 "	.95 "	.82 "
No. 58 " " "	No. 60	1.25 "	1.10 "	.96 "
No. 61 " " "	No. 70	3.20 "	2.50 "	2.20 "
No. 71 " " "	No. 80	4.50 "	4.00 "	3.50 "

SQUARE—FLAT—HEXAGON and OCTAGON DRILL ROD CARRIED IN CERTAIN SIZES.

PRICES ON REQUEST.

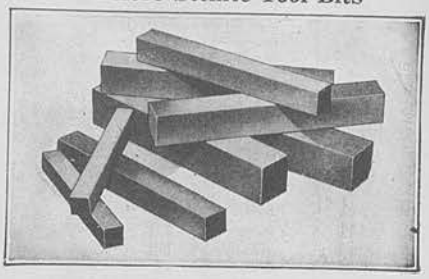
SUPERIOR "ARK" HIGH SPEED STEEL TOOL HOLDER BITS

Sizes and lengths carried in stock:

- 3/16 in. square, 2 in. long
- 1/4 in. square, 2 in. long
- 5/16 in. square, 2½ in. long
- 3/8 in. square, 3 in. long
- 7/16 in. square, 3 and 3½ in. long
- ½ in. square, 4 in. long
- 5/8 in. square, 4½ in. long
- 3/4 in. square, 5 in. long

Special lengths and sizes made to order.

Standard Sizes and Prices of Solid Deloro Stellite Tool Bits



Cross Section	Length	Price Each	Cross Section	Length	Price Each
1/4" square..	2 1/8"	$0.47	5/8" square..	3"	$2.32
5/16" square..	2 1/4"	0.70		3 1/2"	2.68
	2 1/2"	0.74		4"	3.04
	4"	1.20		4 1/2"	3.41
3/8" square..	2"	0.75		5"	3.78
	2 1/2"	0.89		6"	4.56
	2 3/4"	0.95	3/4" square..	3 1/2"	3.69
	3"	1.05		4"	4.20
	3 1/2"	1.20		4 1/2"	4.73
	4"	1.35		5"	5.24
	6"	2.05		6"	6.27
7/16" square..	3"	1.32	7/8" square..	5"	6.86
1/2" square..	3"	1.58	1" square...	7"	12.08
	3 1/2"	1.81	POTTER & JOHNSTON TOOLS		
	4"	2.08			
	4 1/2"	2.33	3/4"x3/4"x11/16"	3 1/4"	$3.75
	5"	2.58		4 5/8"	5.40
	6"	3.08		6"	6.50

JESSOP'S GENUINE SHEFFIELD STEELS

Tool Steel

Round Square Octagon

An excellent quality of crucible tool steel.

For 150 years or more, it has been a popular brand in forges and machine shops.

The process of manufacture insures an even grain, without hard spots, making forging and tempering easy.

Stock bars about 12 feet long.

Made in the usual variety of shapes.

Prices upon application.

The Jessop range of carbon tool steels includes:—

BEST CAST STEEL WARRANTED
BEST CAST STEEL—YELLOW LABEL
GREEN LABEL CAST STEEL
"BLACK LABEL" CAST STEEL
CHARLES LEONARD'S CAST STEEL
SPECIAL STEELS
DURO STEEL
B. B. HOT DIE STEEL
ALLOY "C" STEEL
"J-4" CHISEL STEEL
"H.13" STEEL.

HIGH SPEED STEELS
ARK SUPERIOR
ARK SUPERLATIVE
T. T. Q.
ARK SUPREME

CORBIN BUILDERS' HARDWARE

Description of Finishes

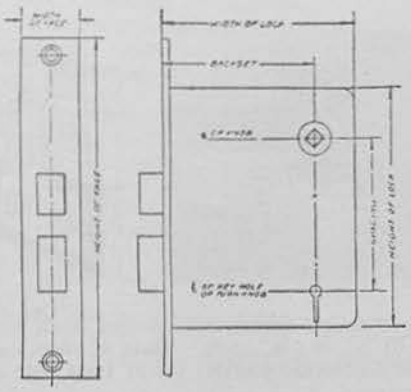
Corbin Builders Hardware is produced in a wide range of finishes and will fill practically all demands of taste and service for all types of buildings from the modest home to the largest structure.

The various finishes are designated by initials which are prefixed to the numbers in order to specify the finish desired.

While the finishes listed below are ones which have proved most acceptable, we will be pleased to furnish full information on the maker's complete list, or secure to special order any material or special finish, and invite your inquiries which will have our prompt attention.

Prefix	Finish
"R"	Antique Copper Finish.
"A"	Polished Brass Finish.
"EA"	Dull Brass Finish.
"B"	Polished Bronze Finish.
"DB"	Dull Bronze Finish.
"E"	Polished Nickel Finish.
"DE"	Dull Nickel Finish.
"CR"	Polished Chromium Finish.
"DCR"	Dull Chromium Finish.
"HB"	Light Statuary Bronze Finish.
"KB"	Medium Statuary Bronze Finish.
"LB"	Dark Statuary Bronze Finish.
"KA"	Dull Brass, Oxidized and Relieved.
"KHB"	Dull Bronze, Oxidized and Relieved.
"KE"	Dull Nickel, Oxidized and Relieved.
"KF"	Dead Black or Imitation Bower-Barffed Finish.
"ExKF"	Polished Nickel edges and high portions with Dead Black finish depressed parts.
"HPE"	Old or Half Polished Iron Finish.
"EH"	Fresh Forged Iron Finish.
"BH"	Old Bronze Finish.
"AxKF"	Polished Brass Finish on Dead Black background.
"LBxB"	Polished Bronze Edges and high parts with depressed portion of design in Dark Statuary Finish.
"C"	Coppered Finish.
"MR"	Sprayed Maroon Bronze Finish.
"AL"	Sprayed Aluminum Finish.
"D"	Sprayed Dead Black Finish.
"Y"	Amber or Berlin Bronzed Finish.
"BP"	Brown Enamel Finish.
"J"	Lustrous Black Japan Finish.
"DW"	Wrinkle Black Japan Finish.
"EAW"	Wrinkle Dull Brass Finish.
"HBW"	Wrinkle Statuary Bronze Finish.

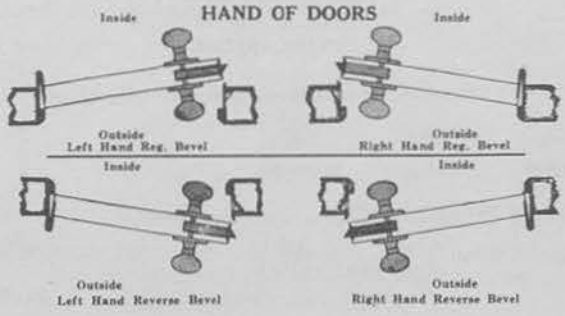
Always Specify Finish Desired by Prefixing Symbol to the Number.



LOCK MEASUREMENTS

Size of Case—Measurement is taken over all.
Front—The front or face is measured full width and length.
Backset—Distance from front of lock to centre of knob or centre of keyhole or centre of cylinder.

The backset of a rabetted lock is taken from both sides.
Spacing—Distance from centre of knob hub to centre of keyhole post, cylinder or thumb turn hub.



The hand of a door is determined from the outside. The outside of a street door is the street side. The outside of a room door is the hall or corridor side. The outside of a closet door is the room side.

If the butts are on the right hand side of a door opening in, the door is right hand regular bevel.

If the butts are on the left hand side of a door opening in, the door is left hand regular bevel.

If butts are on the right hand side of a door opening out, the door is right hand reverse bevel.

If butts are on the left hand side of a door opening out, the door is left hand reverse bevel.

CORBIN BALL BEARING CYLINDERS

Afford the highest degree of security. Fine pin-tumbler construction, practically unlimited key changes. Particularly accurate machining, assembly and inspection guarantee that only the key made to fit will operate the cylinder.

The first two pins are balanced directly on ball bearings, which feature eliminates practically all resistance, friction or wear when the key is inserted or withdrawn.

The use of ball bearings is a Corbin invention and places these cylinders in a class by themselves.

SPECIAL KEYING

All lock sets, night latches, etc., specified with Corbin Ball Bearing Cylinders are regularly furnished keyed all different.

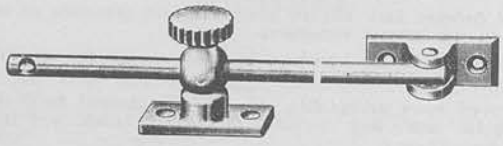
They can also be furnished all keyed alike, Master or Grand Master Keyed.

We will be very pleased to offer any assistance or suggestion in connection with special keying.

Your request will receive prompt attention.

Casement Adjusters

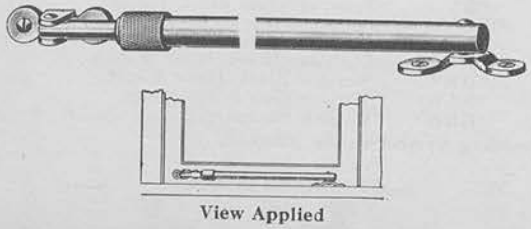
FOR CASEMENTS OPENING OUT



No.				Per Doz.
	Cast Iron			
T01043	Wrot Steel Bar Plated	Length.... **10** in.	10 lbs.	**$6.60**
	Cast Bronze			
1043	Wrot Bronze Bar Polished		11 lbs.	**$12.10**

FOR TOP OR BOTTOM OF CASEMENTS

OPENING IN OR OUT



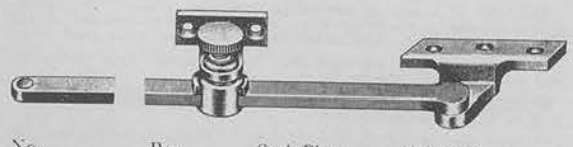
View Applied

(Mounted on outside of casements opening in)

No.	Bar	Tube
*1055	⅜ in. dia.	⅝ in. dia.

Wrought Bronze, Polished,

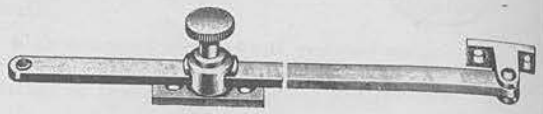
Length, Overall			Per Dozen
	Closed	**10** in.	
	Extended	16¼ in.	
		8½ lbs.	**26 .40**



No.	Bar	Sash Plate	Sill Plate	Per Dozen
1046	¼ x ½ in.	⅞ x 2½ in.	1 x 2 in.	
		Length....	**10** in.	
Cast Bronze, Polished			7½ lbs.	**13.20**

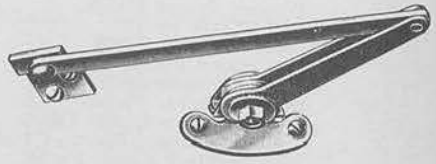
Six in a box, with screws

Our desire is to have you come to us for your every day requirements.



Cast Bronze, Polished

No.	Bar	Sash Plate	Sill Plate	Per Doz.
1047	½ x ¼ in.	½ x 1½ in.	11/16 x 2 in.	
	Length ...	**10** in.	6½ lbs.	**13.20**

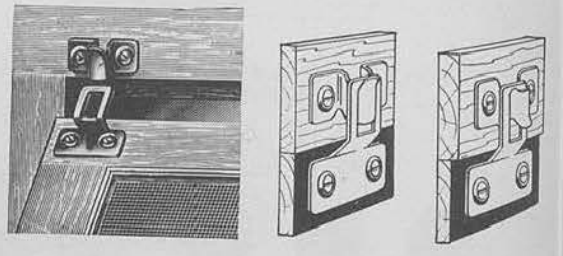


01058

ADJUSTABLE FRICTION

No.	Weight Dozen		Per Doz.
01058	8 lbs.	**Wrought Steel,** Cadmium Plated	11.60

Storm Sash and Screen Hangers



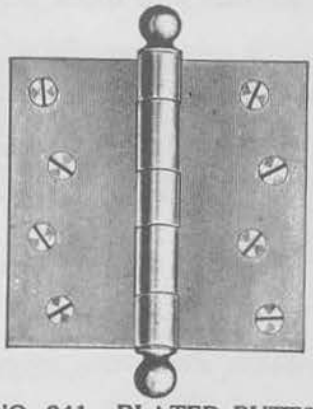
Combination Screen and Storm Sash Hangers. Adjustable to fit ⅞" or 1⅛" sash. Made of steel, cadmium plated. One pair (4 pieces to set). **No. 1004** Per Dz. Pr..... 1.20

No. 1004-

No. 1717 Hangers.....Per dozen sets **$2.00**

No. 1719 Fastener 1719 x 10".....Per doz. Sets **$3.00**
No. 1719 Fastener 1719 x 5".....Per doz. Sets **3.00**
One dozen sets in a box with screws.

WROUGHT STEEL PLATED BUTTS



NO. 241—PLATED BUTTS

Planished and Plated — Loose Pin — Ball Tips

For use on interior doors of residences where a good practical steel butt is desired and a panished surface will meet the requirements.

No. 241F —Dull Brass finish.
No.241F2—Antique Brass finish.
No. 241D2—Old Copper finish

Size open, inches	2½x2½	3x3	3½x3½	4x4	4½x4½	5x5
Per pair	$0.36	.37	.39	.56	1.26	2.33

No. 241A —Polished Bronze finish
No. 241C —Polished Brass finish
No. 241B4—Statuary Bronze, medium.

Size open, inches	2½x2½	3x3	3½x3½	4x4	4½x4½	5x5
Per pair	$0.41	.42	.45	.63	1.35	2.33

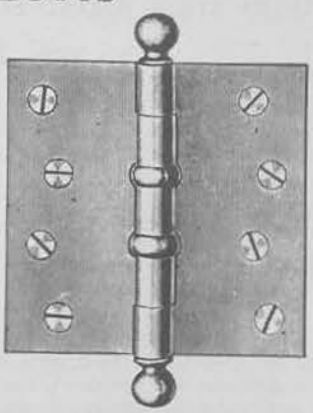
No. 241H —Dull Black, Sanded

Size open, inches	2½x2½	3x3	3½x3½	4x4	4½x4½	5x5
Per pair	$0.45	.46	.48	.69	1.43	2.59

No. 241N —Nickel Plated.
No. 241N5—Nickel Plated dull.

Size open, inches	2½x2½	3x3	3½x3½	4x4	4½x4½	5x5
Per pair	$0.53	.56	.58	.79	1.54	2.70

One pair in a box with screws.



NO. BB241—BALL BEARING PLATED BUTTS

Planished and Plated — Loose Pin — Ball Tips

Equipped with two Non-Detachable ball bearing washers, which prevent the butts from wearing at the joints and insure that the doors will operate easily and without noise. Designed for use on interior doors where a good practical steel ball bearing butt is desired and a planished surface will meet the requirements.

No. BB241A—Polished Bronze finish

Size open, inches	3½x3½	4x4	4½x4½	5x5
Per pair	$1.42	1.66	2.52	3.74

No. BB241F—Dull Brass finish

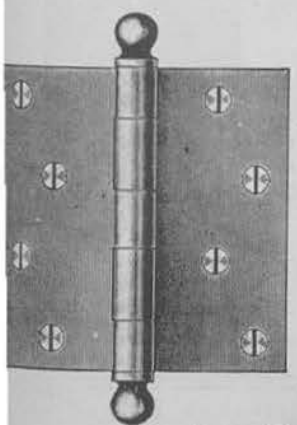
Size open, inches	3½x3½	4x4	4½x4½	5x5
Per pair	$1.30	1.50	2.30	3.50

One pair in a box with screws.

Use Three Butts to a Door

All Butts and hinges are regularly carried in stock in sizes and finishes listed; Other sizes and finishes supplied to special order.

WROUGHT BRONZE AND BRASS BUTTS



NO. 175
STEEL BUSHED

Polished and Highly Finished
Loose Pin—Ball Tips

Designed for use on doors of residences where a fine butt is desired or for exterior or interior doors used moderately where the balling bearing feature is not desired.

Equipped with steel bushings which extend the entire length of each knuckle preventing wear at the joints.

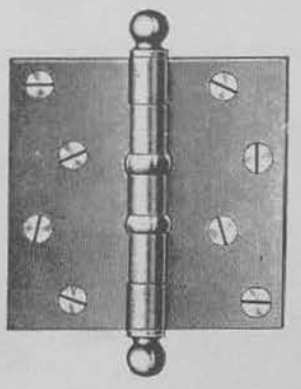
No. 175A—Polished Bronze
No. 175C—Polished Brass.

ze open, inches	3x3	3½x3½	4x4	4½x4½	5x5
r pair	$4.10	4.50	5.30	6.70	8.30

One pair in a box with screws.

NO. BB180
BALL BEARING BUTTS

Polished and Highly Finished
Loose Pin—Ball Tips



For use on interior doors of office buildings, public buildings and dwellings where the finest regular weight ball bearing butt is desired, and for exterior doors where an extra heavy butt is not required.

Equipped with Non-Detachable ball bearing washers which prevent wear at the joints and insure that doors will operate easily and without noise.

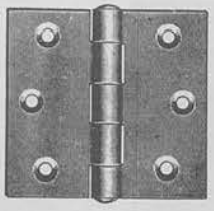
No. BB180A—Polished Bronze

No. BB180C—Polished Brass

Size open, inches	3½x3½	4x4	4½x4½	5x5
Per pair	$5.40	6.40	7.60	9.60

One pair in a box with screws.

WROUGHT STEEL BROAD BUTTS



No. 808—Transom Butts

Plain Steel — Fast Pin

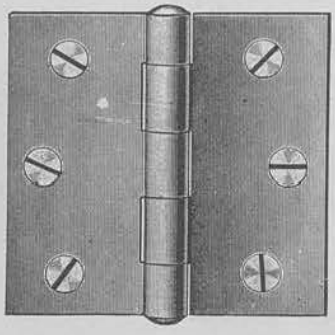
Size open inches	Per doz. Pairs
2½x2½	$2.00
3 x3	2.10
3½x3½	2.40
4 x4	3.70
4½x4½	8.00
5 x5	15.50

Size 3x3 inches and smaller—1 dozen pairs in a box.
Sizes 3½x3½ inches and 4x4 inches—½ doz. pairs in a box.
Sizes 4½x4½ inches and 5x5 inches—¼ doz. pairs in a box.
Without screws.

No. 1319—Galvanized With Brass Pins

Fast Pin

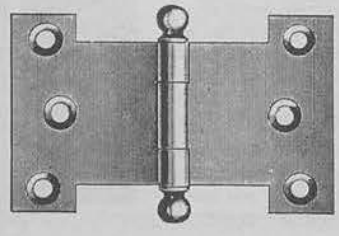
For Outside Transoms and Cellar Windows



Size open inches	Per doz. Pairs
2½x2½	$5.00
3 x3	6.80
3½x3½	8.60
4 x4	11.20

One dozen pairs in a box with screws

WROUGHT STEEL PARLIAMENT BUTTS



Loose Pin — Ball Tips — Bright Finish

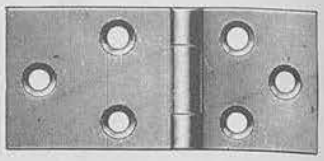
No. 828—Size, width open, inches	4½	5	6
Length of Joint, inches	1¾	1¾	2
Per dozen pairs	$4.90	6.20	7.50

Half dozen pairs in a box.

TABLE HINGES AND BACK FLAPS

No. 810 Wrought Steel Table Hinges

Fast Pin- Flush Riveted
Plain Steel Finish

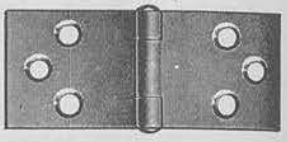


No. 810—Size, width of joint, inches	1	1¼	1½	2"
Width, open, inches	2⅝	2⅞	3⅛	3⅛
Per dozen pairs	$ .96	1.22	1.34	2.12

One dozen pairs in a box without screws.

No. 814 Wrought Steel Back Flap Hinges

Plain Steel Finish



No. 814—Size, width of joint, inches	1	1¼	1½	1¾	2
Width, open, inches	2⅞	3¼	3⅞	4	4⅜
Per dozen pairs,	$1.06	1.34	1.62	1.92	2.40

One dozen pairs in a box without screws

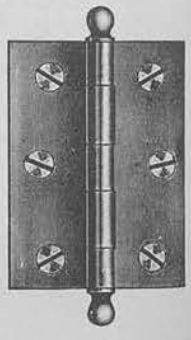
BALL TIP PLATED BUTTS

For use on cabinets, book cases, cupboards, china closets, medicine cabinets, etc. Made of wrought steel toughened and hardened by cold rolling.

No. 295 Narrow Ball Tip Plated Butts

Loose Pin

Finishes
A —Polished bronze finish.
C —Polished brass finish.
D2—Old Copper finish.
F —Dull brass finish.
B4—Statuary bronze, medium.
H —Dull black, sanded.
N —Nickel Plated.



Price per dozen pairs

#295	F. F2. D2.	A. C. B-4.	H.	NH. SN2 N5. N2	CM.
1½"	2.20	2.80	3.30	3.90	9.60 doz. pr.
2"	2.30	3.00	3.50	4.40	10.00 doz. pr.
2½"	2.50	3.20	3.70	4.60	10.50 doz. pr.
3"	3.30	4.00	4.60	5.50	11.50 doz. pr.

Half dozen pairs in a box with screws.

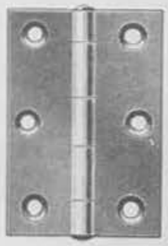
We are as near as your nearest telephone.

LIGHT NARROW BUTTS

Loose Pin

No. 840

Fast Pin



No. 838

Loose Pin

Wrought Plain Steel. Size 2½ inch and larger have Five Knuckles: smaller sizes have Three.

Fast Pin

Wrought Plain Steel. Sizes 2 inch and smaller have Three Knuckles. Larger sizes have Five Knuckles.

No. 838—Bright

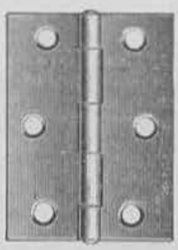
Size, In.	1x1	1¼x1$\frac{1}{16}$	1½x1$\frac{7}{16}$
Size, Screws	½x3	⅝x4	⅝x5
Per Dozen Pairs	**$0.46**	**.60**	**.64**
Size, In.	2x1$\frac{9}{16}$	2½x1$\frac{11}{16}$	3x2
Size, Screws	¾x6	¾x6	¾x7
Per Dozen Pairs	**$0.74**	**.88**	**1.40**

No. 840—Bright

Size, In.	1½x1$\frac{7}{16}$	2x1$\frac{9}{16}$	2½x1$\frac{11}{16}$	3x2
Size, Screws	⅝x5	¾x6	¾x6	¾x7
Per Dozen Pairs	**$0.64**	**.74**	**.88**	**1.40**

Packed—One Dozen Pairs in a Carton, **without** Screws.

NARROW BUTTS



No. 800

Plain Steel. Size 2 inch has Three Knuckles; all others have Five Knuckles. **Fast** Pin.

No. 800—Bright

Size, In.	1½x1$\frac{7}{16}$	2½x1⅞	3x2⅛	3½x2½	4x2⅞
Size, Screws	¾x6	¾x7	1x8	1x9	1x9
Per Dozen Pairs	**.70**	**1.20**	**1.74**	**2.20**	**3.50**

WROUGHT STEEL BUTTS

No. 1315

Narrow Butts

Galvanized with Brass Pins

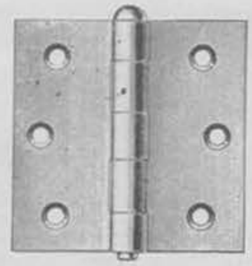
Fast Pin

Length, inches	1½	2	2½	3
Width open, ins.	1$\frac{7}{16}$	1$\frac{11}{16}$	1⅞	2⅛
Per doz pairs	**$3.00**	**3.50**	**4.40**	**5.60**

One dozen in a box.
with screws.

REVERSIBLE PLAIN STEEL BUTTS

Loose Pin



No. 804

Wrought Steel, Oval Tip. Size 2x2 inch has Three Knuckles: all others Five.

No. 804—Bright

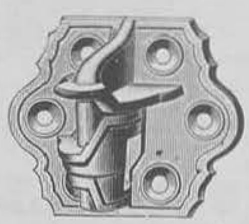
Size, In.	2x2	2½x2½	3x3
Size, Screws	¾x7	⅞x8	1x8
Per Dozen Pairs	**$0.82**	**1.08**	**1.40**
Size, In.	3½x3½	4x4	5x5
Size, Screws	1x9	1x10	1¼x12
Per Dozen Pairs	**$2.20**	**2.86**	**5.60**

SCREW AND STRAP HINGES

No. 909—Size, inches	6	8	10	12	15	18
Per dozen pairs	**$4.90**	**5.60**	**7.70**	**7.90**	**9.40**	**13.60**

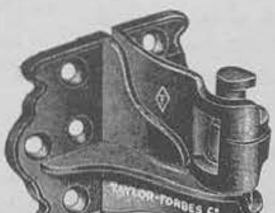
One pair in a bundle

Blind Hinges



Empire Pattern

Nos. **1** and **3**



Empire Pattern

No. **50**

Nos. **1** and **3** — Constructed to permit Storm Windows to be put on without removing female part of Hinge which is attached to the window frame.

No. **50** — Large and heavy—for brick walls.

Catch and Strike Plate—as supplied with all Blind Hinge sets.

Number	Pattern	Size Inches	Throw Inches	Price Carton
1	Empire	2⅛x 2⅝	1¼	**$3.40** doz.
3	"	2⅜x 3	3¼	**7.00** doz.
50	"	3 x 3½	4⅝	**18.00** doz.

LIGHT STRAP HINGES

Fast Pin. Made of Wrought Steel.

No. 900

Length of Each Leaf, Inches	Length of Joint, Inches	Size of Wood Screws	Number of Screw Holes	Per Dozen Pairs
3	1 3/32	3/4x6	6	$1.36
4	1 3/16	3/4x7	6	1.76
5	1 11/32	1x8	8	2.04
6	1 9/16	1x9	8	2.64

Packed—Wired in Bundles.

No. SC900

Same description and dimensions as No. 900, above, except that they are packed one pair in a carton, with screws.

No. SC900

Size, inches	3	4	5	6
Per Dozen Pairs	$2.20	2.52	2.76	3.72

Packed—One Pair in a Carton, with Screws.

HEAVY STRAP HINGES

Fast Pin. Made of Heavy Wrought Steel

No. 209

Length of Each Leaf, Inches	Length of Joint, Inches	Size of Wood Screws	Number of Screw Holes	Per Dozen Pairs
4	1 9/16	1 x 9	6	$3.00
5	1 3/4	1 x10	8	3.26
6	2 7/16	1 1/4x11	8	3.92
8	3 3/16	1 1/4x12	8	5.32
10	3 21/32	1 1/2x14	8	9.24
12	4 9/16	1 1/2x16	10	12.10

Packed—Wired in Bundles.

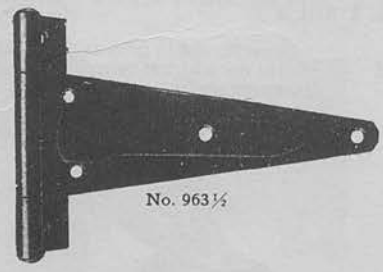
No. SC902

Same description and dimensions as No. 902, above, except that they are packed one pair in a carton, with screws.

No. SC209

Size, inches	4	5	6	8	10	12
Per Dozen Pairs	$3.00	3.72	4.80	6.36	10.56	13.20

Packed—One Pair in a Carton, with Screws.



No. 963½

EXTRA HEAVY HALF SURFACE TEE HINGES

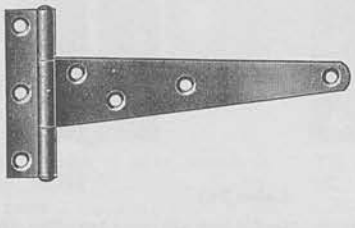
Japanned — Fast Pin — Reverse Pad

No. SC963—Size inches	8	10	12
Per pair	$ .80	1.20	2.10

One pair in a box with screws.

NOTE:—All above hinges except No. SC963 are bright steel finish. Size of hinge is length of strap.

LIGHT T HINGES



No. 904

No. SC904

Fast Pin. Light. Made of Wrought Steel.

No. 904

Length of Strap, Inches	Length of Joint, Inches	Width of Strap at Joint, Inches	Size of Wood Screws	Number of Screw Holes	Per Dozen Pairs
3	2 3/8	1	3/4x7	6	$1.36
4	2 5/8	1 1/16	3/4x7	6	1.60
5	3	1 3/16	1x8	7	1.94
6	3 1/4	1 1/4	1x8	7	2.64

Packed—Wired in Bundles.

No. SC904

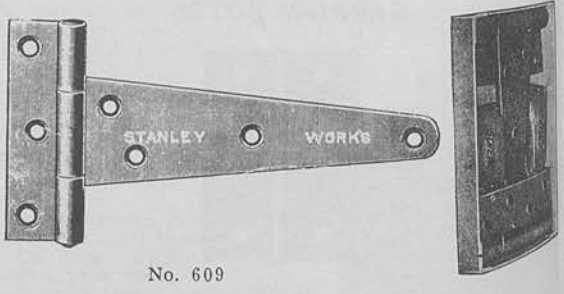
Packed in Cartons with Screws

Same description and dimensions as No. 904 above, except that they are packed one pair in a carton, with screws.

Size, inches	3	4	5	6
Per Dozen Pairs	$2.15	2.50	2.90	3.20

Packed—One Pair in a Carton, with Screws.

HEAVY T HINGES



No. 609

Fast Pin. Heavy. Made of Wrought Steel

No. 609

Length of Strap, Inches	Length of Joint, Inches	Width of Strap at Joint, Inches	Size of Wood Screws	Number of Screw Holes	Per Dozen Pairs
4	2 7/8	1 5/16	1 × 8	6	$2.56
5	3 1/4	1 7/16	1 × 8	7	3.00
6	3 1/2	1 9/16	1 × 9	7	3.52
8	4	1 3/4	1 ×10	7	4.60
10	4 1/2	2	1 1/4 ×11	8	8.00
12	5 1/2	2 5/16	1 1/4 ×12	9	10.10

Packed—Wired in Bundles.

No. SC609

Packed in Cartons with Screws

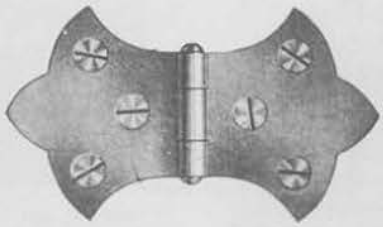
Same description and dimensions as No. 609, above, the except that they are packed one pair in a carton, with screws.

Size, inches	4	5	6	8	10	12
Per Dozen Pairs	$3.48	3.96	4.44	6.00	8.64	11.04

Packed—One Pair in a Carton, with Screws.

Ornamental Hinges

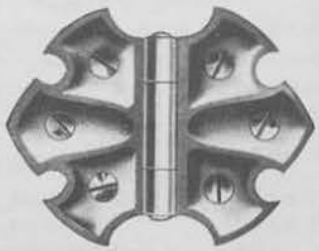
Clover Leaf Pattern



No. 1490 Full Surface. Per dozen pairs with screws.

Symbols for Finishes	Description	Size, Inches	
		¾	1
A	Bronze Plated	$1.20	$1.40
D2	Antique Copper	1.20	1.40
F	Dull Brass	1.20	1.40
F2	Antique Brass	1.20	1.40
H	Dead Black, Electro-Plated	1.40	1.60
N	Nickel Plated	1.50	1.70

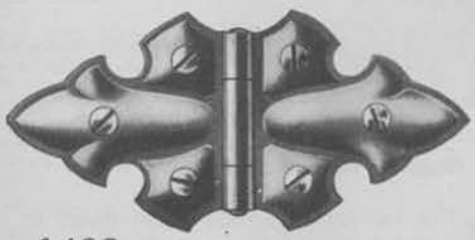
Lotus Pattern



No. 1478 Full Surface.

Symbols for Finishes	Description	1" Per Dozen Pairs with Screws
A	Bronzed	$1.80
D2	Antique Copper	1.80
F	Dull Brass	1.80
F2	Antique Brass	1.80
H	Dead Black, Elec.-Plated	2.10
N	Nickel Plated	2.40

The Lotus Pattern



No. 1482

Length of joint, 1½-inches; extreme width when open, 3¾-inches.

		Per Dozen Pairs
1482F2	Antique brass	$1.80
1482SF2	Antique brass, sand finish	2.10
1482H	Dead blk., elec-plate	2.10
1482N	Nickel-plated	2.20

One dozen pairs in a box, with oval head screws.

Ornamental Hinges

No. 1480

Length of joint; 1½-inches; extreme width when open, 3⅛-inches.

Number	Description	Per Dozen Pairs with Screws
1480A	Bronze-plated	$1.80
1480D2	Antique copper	1.80
1480SD2	Antique cop r, sd. fin.	2.20
1480F	Dull brass	1.80
1480F2	Antique brass	1.80
1480SF2	Antique brass, sd. fin.	2.20
1480H	Dead black, elec-plate	2.20
1480N	Nickel-plated	2.20

One dozen pairs in a box, with oval head screws.

Half Surface

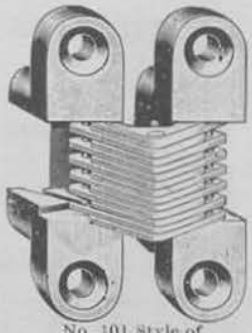
Loose Pin Oval Tip

Reversible

No. 1479 Per dozen pairs with OH-FH screws

Size, Length of Joint (Inches)	Finishes A-C-D2 F	Finishes H-SF4	Finishes N-N5	Finishes SN-SN5
1½	$1.80	$2.10	$2.20	$2.50

SOSS INVISIBLE HINGES

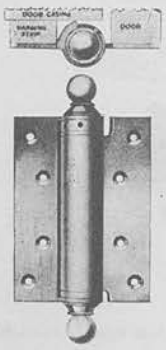


No. 101 Style of Nos. 104 to 116

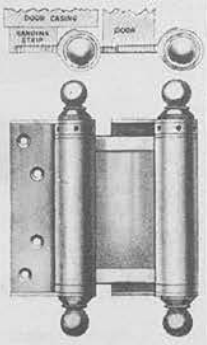
Suitable for hanging doors from the lightest in cabinet work to those of heavier weight such as used in residences and larger buildings. Furnished with screws. Brass Finish.

Nos.	Size of Plates inches	Minimum Thickness of Wood Required, inches	Depth of Mortise, inches	Pairs in Carton	Per Pair
101	1 1/16 x ⅜	½	15/32	12	$1.10
104	2⅜ x ½	1 1/16	19/32	6	1.35

Spring Butt-Hinges



Chicago "Triplex"

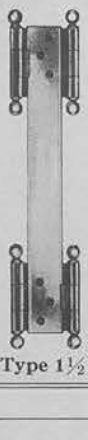


Single Acting
Type 2002

Double Acting
Type 2001

	Length of Flange	INCHES				
		3	4	5	6	7
	For Doors	¾ to 1	⅞ to 1¼	1⅛ to 1½	1¼ to 1¾	1⅜ to 2

STEEL PLANISHED	No.	U. S. Standard Finish Symbol	PRICES PER PAIR				
Dead Black.	2001	US1D	$4.55	$5.45	$6.40	$7.90	$10.10
Primed.....	2011	USP	"	"	"	"	"
Brass, Bright	2111	US3	6.15	7.40	8.60	10.95	14.15
Brass, Dull..	2281	US4	"	"	"	"	"
Dead Black.	2002	US1D	2.70	3.35	3.80	4.70	6.05
Primed.....	2012	USP	"	"	"	"	"
Brass, Bright	2112	US3	3.60	4.45	5.15	6.50	8.50
Brass, Dull..	2282	US4	"	"	"	"	"

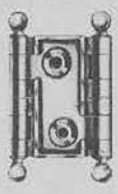


Chicago Spring

OR

Springless

Double Acting



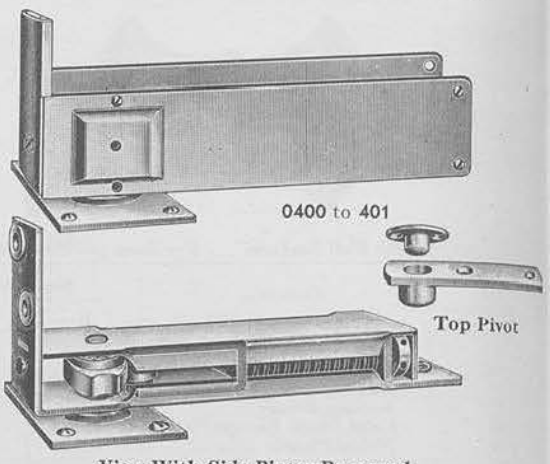
Type 1½

Type 3½

	Thickness of Door		INCHES	
			1⅜ to 1½	1¾ to 2
STEEL PLANISHED	No.	U. S. Standard Finish Symbol	PRICES PER SET	
Dead Black.	1½	US1D	$7.00	$10.00
Dead Black.	3½	US1D	3.50	5.00

Surface Floor Spring Hinges

FOR LIGHT DOUBLE-ACTING INSIDE DOORS



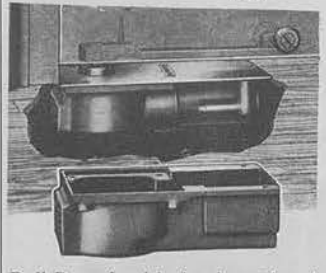
View With Side Plates Removed

Adjustable as to alignment

For doors 1⅛ to 1¾ in. thick
Wrot Steel frame 9 in. long. Wrot steel base plate 3 x 2¾ in.
Reversible side plates 1⅞ x 9½ in. ⅜ in. projection
Will hold door open at 90° angle. Cannot be otherwise furnished

Without Adjustable Spring Tension No.	Plated	Per Pair
R 0400	**Wrot Steel,**	$1.40
EA 0400	**Wrot Steel,** Plated	1.40
400	**Wrot Bronze,** Polished	3.00

Bommer Checking Floor Hinges



Double Action

For Light Interior

Doors only 2′ 8″ wide

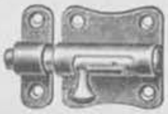
Weight floor check 9¾ lbs.
Iron Outer-Case 3⅝ lbs.

Dull Brass furnished unless otherwise specified.
Packed complete with screws to match finish.

For pantry or dining room doors in residence and apartment houses. Permits the door to swing in both directions, closes the door quietly and brings it to rest at center.

No. 70 Dull or Polished Brass or Bronze	Per Set	$15.00
No. H70 Dull or Polished Brass or Bronze	"	15.00
For ordinary plated finishes add to above prices	"	1.00
For Chromium Plated add to above prices	"	2.00
For Nickeline (White Bronze) floor plate and pivot add to above prices.		2.50
Iron Outer-Case No. 70-33 for cement, tile or stone floors		2.00

CELLAR WINDOW BOLTS



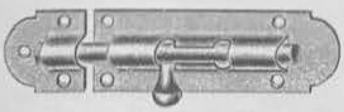
No. J-0220½—"Corbin"

Japanned steel plate. Bright steel bolt and knob (without screws). In lengths as below.

No. J-0220½x2".	Dozen list......	$1.50
x2½"	Dozen list.......	1.60
x3".	Dozen list.......	2.29

1 dozen in a box.

LIGHT STEEL BARREL BOLTS



0223, 223

No. J0223½—Japanned Finish
Japanned Plate—Plain Steel Bolt
Brass Plated Knob.

Length Inches	2½	3	4	5	6
Per dozen...	$1.10	1.30	1.50	2.00	2.50

One dozen in a box—no screws.

EAT0223—Dull Brass
RT0223—Ant. Copper

Length Inches	2½	3	4	5	6
Per dozen...	$1.20	1.40	1.60	2.20	3.00

ET0223—Nickel Plated

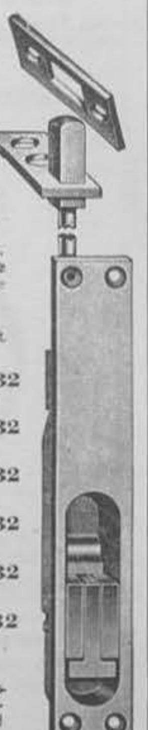
Length Inches	2½	3	4	5	6
Per dozen...	$2.40	2.80	3.20	4.40	6.00

One dozen in a box with screws.

EXTENSION FLUSH BOLTS

No. 2854 — "Corbin"
Cast Bronze

With 12 or 18 Inch Rods



Heavy bronze plate 7⅝x1⅟₁₆ ins. Flush lever handle; ½ in. square bolt head. Complete with guide and strike.

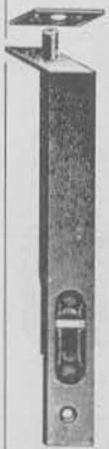
No.	Each List
A-2854x12". Pol. Brass	$ 2.32
B-2854x12". Pol. Bronze.......	2.32
DB-2854x12". Dull Bronze.......	2.32
A-2854x18". Pol. Brass	2.32
B-2854x18". Pol. Bronze	2.32
DB-2854x18". Dull Bronze.......	2.32

2 in a box, with screws.

The length of extension flush bolts is measured from centre of operating lever to the end of bolt head when retracted.

FLUSH BOLTS

Wrought Steel
Length 2⅞ inch
Width ¾ inch
No. EA02813¾
Dull Brass
Per dozen **$5.82**
One dozen in a box

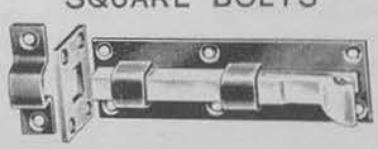


Cast Iron
Width one inch
No. EA02823
Dull Brass 6 inch
Per dozen **$7.40**
No. EA02823
Dull Brass 8 inch
Per dozen **$8.54**
No. R02823
Antique Copper 6 inch
Per dozen **$7.40**
No. R02823
Antique Copper 8 inch
Per dozen **$8.54**
Half dozen in a box

SURFACE BOLTS

Wrought Steel
Width Rod ⅜ inch
EA01970 Dull Brass 4 inch
Per dozen **$4.18**
EA01970 Dull Brass 6 inch
Per dozen **$4.40**
Width Rod ½ inch
EA01971 Dull Brass 9 inch
Per dozen **$5.40**
One dozen in box

SQUARE BOLTS



No. 1088

Length	6	8	10
Per dozen	7.80	10.80	13.20
Boxes	1 doz.	½ doz.	¼ doz.

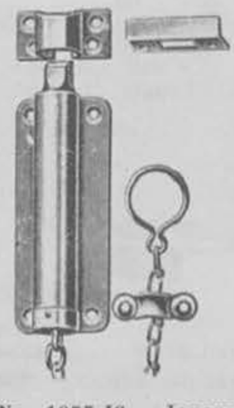
CREMORNE BOLTS

Wrought Steel
Steel Rods 10½ feet long
No. T01996 Ornamental
Knob and Plate

Each **$2.86**

Packed loose

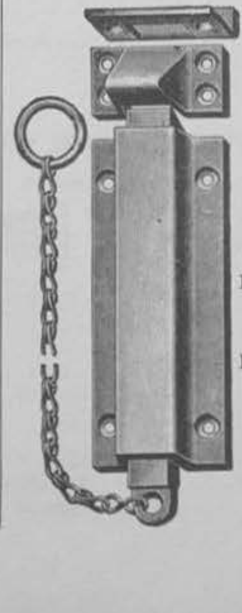
CHAIN BOLTS



Wrought Steel

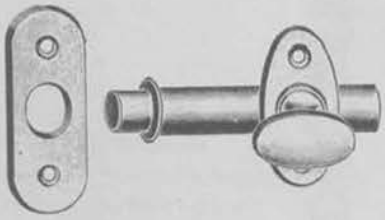
		Per dozen
No. 1055 J6	Japanned	$6.00
No. 1055J 10	Japanned	24.00

½ dozen in a box



Cast Iron
Width 2⅛ inch
Length 6 inch
No. EA0252
Dull Brass
Per dozen ... **$10.56**
No. R0252
Antique Copper
Per dozen ... **$10.56**
6 in a box

MORTISE BOLTS



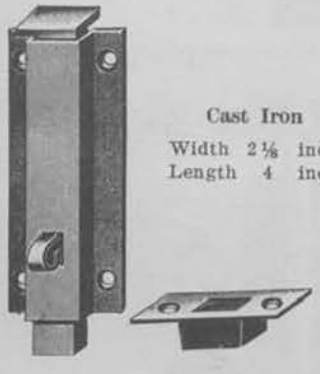
Wrought Bronze

Backset 1¾ inch

No. EA266 Dull Brass Per doz. **$6.60**

Twelve in a box

FOOT BOLTS



Cast Iron

Width 2⅛ inch
Length 4 inch

		Per doz.
No. EA0230	Dull Brass	$8.80
No. R 0230	Antique Copper	8.80

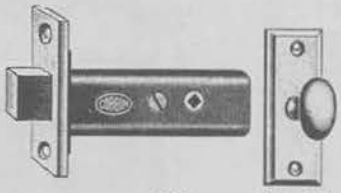
Six in a box

Wrought Steel

Operated by a pressure of the foot

		Per dozen 6 inch	10 inch
No. 1057	Japan	$6.00	$24.00

MORTISE BOLTS



264 2¾ x 1 in.

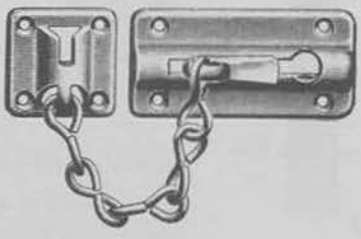
Cast Bronze

Backset ½ inch

No. EA264 Dull Brass Per Doz. **$19.80**

Six in a box

CHAIN DOOR FASTENERS

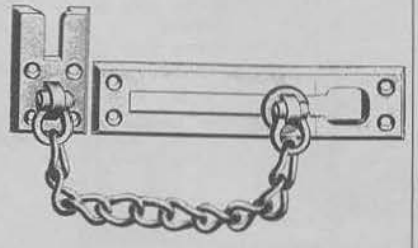


Cast Iron

Size 1⅞ x 4 inch

		Per doz.
No. T02266	Plated	$2.98
No. Z02266	Brassed	2.64
No. Z02266	Old Copper	2.64

Six in a box



Cast Iron

Size 6 inch

		Per doz.
No. EA02265	Dull Brass	$7.16
No. R02265	Antique Copper..	7.16

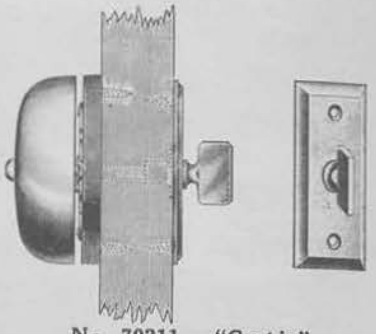
Cast Bronze

		Per doz.
No. EA2265	Dull Brass	$13.20

Six in a box

Door Bell Sets

ROTARY STROKE, TO OPERATE BY TURN



No. 70211 — "Corbin"

3 ins. wrought steel nickel plated bell; 3¼ x1½ ins. brass plate and "T" turn.

No.	Finish	Dozen List
R-70211.	Antique Copper	$11.00
A-70211.	Polished Brass	11.00
EA-70211.	Dull Brass	11.00

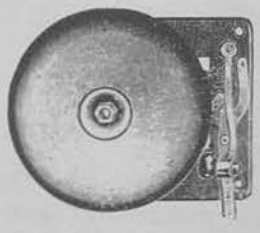
Each in a box, complete.

Electric Push Buttons

WROT BRASS—SATIN FINISH

No. 1188	Dia. 2⅜ in.	.96 Each
No. 01188	Wrot Steel Plated	.84 Each

Standard Trip Signal Gongs



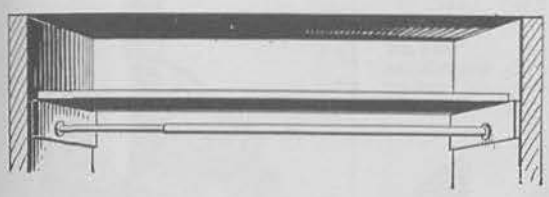
CAST BELL METAL GONG—Polished Cast Iron Plate

Nos.	6	8
Dia. Inches	6	8
Weight each pounds...	2⅜	6
Each	$5.10	$11.80

Closet Bars

1235, 01235

WALL TO WALL TYPE



1235, 01235

View applied

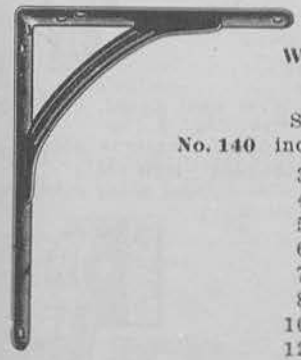
Base 2⅛ in. Dia. Bars 1 in. and 15/16 in. Dia.

No.		
01235	Wrought Steel	NP
1235	Wrought Brass	NP

Size			Weight Dozen	Per Dozen 01235	1235
18 in.	Extends to	30 inches	18 lbs.	$13.20	$26.96
30 in.	Extends to	48 inches	28 lbs.	15.60	34.48
48 in.	Extends to	78 inches	42 lbs.	21.60	48.76
72 in.	Extends to	120 inches	61 lbs.	39.16	86.12

Six in a Box, With Screws

SHELF BRACKETS



Wrought Steel
Japanned

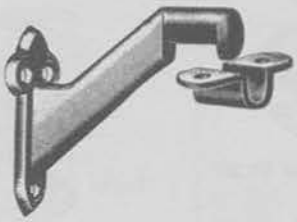
No. 140	Size inches	Weight Doz. Prs.	Per doz. pairs
	3x4	3	$1.10
	4x5	5	1.40
	5x7	7	2.20
	6x8	8	2.50
	7x9	10	3.10
	8x10	12	3.50
	10x12	21	4.80
	12x14	28	7.40

Up to 7 x 9 one dozen pairs in a box
Larger sizes half dozen pairs in a box

THRESHOLDS

Made of Extruded Brass. Can be furnished in standard widths and heights—cut to any length. Prices on application.

HAND RAIL BRACKETS



Cast Iron
Size 4—½ inch projection
No. 0170 Amber Bronze
Dozen $7.0
No. EAT- 0170 Dull Brass
Dozen $3.5
One dozen in a box

Wrought Hand Rail Screws.

No. 51

One Nut.

INCH	4	4½	5
No. 51, 5/16 Inch Steel, per Dozen	$.90	1.00	1.10
Weight per box	5¼	5¾	6¾ lbs.
Full cases contain	750	750	750
Weight	86	97	105 lbs.

No. 52

Two Nuts.

INCH	4	4½	5
No. 52, 5/16 Inch Steel, per Dozen	$1.00	1.10	1.20
Weight per box	7	7½	8¾ lbs
Full cases contain	...	750	...
Weight	...	125 lbs.	...

Fifty in a box.

Line Cleats.

No. 14	3½ Inch, Malleable Iron, Galvanized,	per dozen	.70
No. 16	4½ " " " "	"	1.00

JAPANNED DOOR BUTTONS

Cast Iron
No. 10

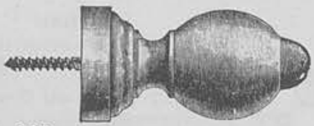
Length ins.	1½	1¾	2	2¼
Per Gross..	1.10	1.30	1.55	2.75

One gross in box

Half

Cast iron, black japanned, length 1¼ inch
No. 5 Per Gross $1.00
Two gross in box

DOOR STOPS AND DOOR HOLDERS



No. 150 **Base Knobs**

Plain Maple ....Per gross **$7.20**

In Bulk

Cast iron plated, 1" base
Projection 2½"

		Per doz.
R-T03763	Antique copper..	**$ .88**
EA-T03763	Dull brass	**.88**

Twelve in box

Cast iron plated, 2" base, 2" projection

		Per doz.
R-T03750	Antique cpper ...	**$3.94**
EA-T03750	Dull brass	**3.94**

No. 3751 Cast bronze with expansion bolt, can be furnished to special order.

Six in box with screws

Cast iron plated, 1⅛" base 1½" height.

		Per doz.
R-T03754	Antiue copper ...	**$1.54**
EA-T03754	Dull brass	**1.54**

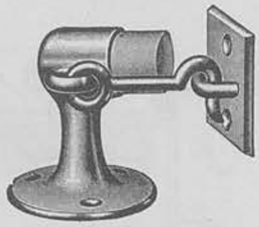
Twelve in box with screws

Cast iron plated, 2" base, 2¼" height

		Per doz.
R-T03752	Antique copper ...	**$5.54**
EA-T03752	Dull brass	**5.54**

No. 3753 cast bronze with expansion bolt can be furnished to special order.

Six in box with screws

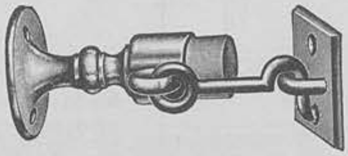


Cast bronze polished, 2½" base, 3" height

B3780 Per doz. **$21.28**

No. 3781 cast bronze with expansion bolt can be furnished to special order.

One in box with screws

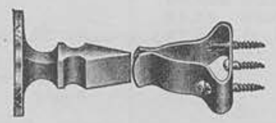


Cast bronze polished, 1⅞" base, 2⅝" projection

B3778 Per doz. **$22.66**

No. 3779 cast bronze with expansion bolt can be furnished to special order.

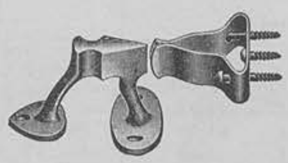
One in box with screws



Cast iron, 2⅝" projection

EA-T03761 Dull brass Per doz. **$6.16**

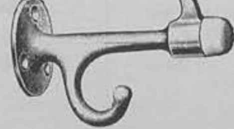
Twelve in box with screws



Cast iron, 1⅞" high

EA-T03760 Dull brass Per doz. **7.04**

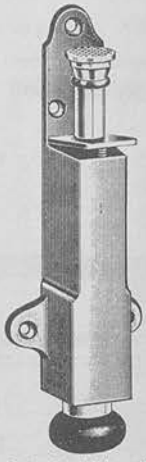
Twelve in box with screws



Cast bronze, 1¾" base, 3¾" projection

		Per doz.
E1220	Polished nickel	**$13.20**

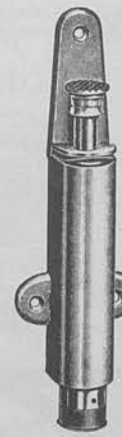
Twelve in box with screws



Cast iron plated, 1⅛" throw
Size: 7¼" x 2⅝".

		Per doz.
R03862	Antique copper ...	**$27.72**
EA03862	Dull brass	**27.72**

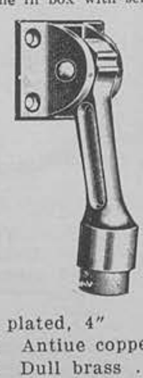
One in box with screws



Wrot steel plated, 1⅛" throw
Size: 7¼" x 2½"

		Per doz.
R03861	Antique copper ...	**$17.16**
EA03861	Dull brass	**17.16**

One in box with screws



Cast iron plated, 4"

		Per doz.
R-T03864	Antiue copper ...	**$17.60**
EA-T03864	Dull brass	**17.60**

One in box with screws

CUPBOARD CATCHES

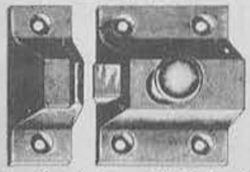
No. 03259—Wrought Steel Plated

Size without strikes 1⅝x1⅜ inches

First dimension denotes length.

Finish		Per dozen
EA03259	Dull brass	$1.56
R03259	Antique copper	1.56
E03259	Nickel plated	1.72

One dozen in a box.



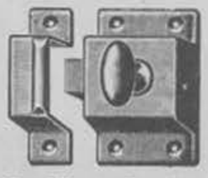
No. 03261—Cast Iron Polished Plated

Size 1½ x 1¼"

		Per dozen
EA03261	Dull brass	$3.30
R03261	Antique copper	3.30
E03261	Nickel plated	3.63

One dozen in a box.

CUPBOARD TURNS



No. 03048—Wrought Steel Plated

Size without strike 1½x2¼ inch

First dimension denotes length.

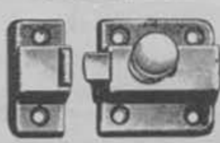
Finish		Per dozen
EA03048	Dull brass	$1.75
R03048	Antique copper	1.75
E03048	Nickel plated	1.92

No. 03046—Wrought Steel Plated

Size without strike 1$\frac{3}{16}$x1⅞ inch

Finish		Per dozen
EA03046	Dull brass	$1.75
R03046	Antique copper	1.75
E03046	Nickel plated	1.92

One dozen in a box.



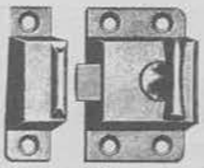
No. 03253—Wrought Steel

Size without strike 1⅝x1"

		Per dozen
EA03253	Dull brass	$1.56
R03253	Antique copper	1.56
E03253	Nickel plated	1.72

One dozen in a box.

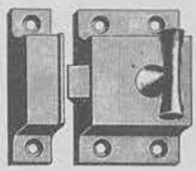
CUPBOARD CATCHES



No. 03049—Wrought Steel

Size 2⅛x1⅝"

		Per dozen
EA03049	Dull brass	$1.75
R03049	Antique copper	1.75
E03049	Nickel plated	1.92



No. 03039—Cast Iron

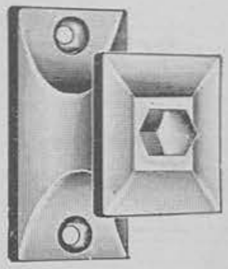
Size 2¼x1⅝"

		Per dozen
EA03039	Dull brass	$6.06
R03039	Antique copper	6.06
E03039	Nickel plated	6.66

Cast Brass

EA3039	Dull brass	$10.56

One dozen in a box.

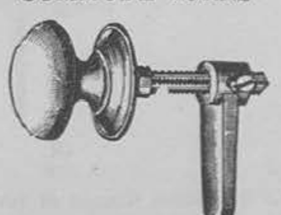


No. 1505

Cast Brass Push Catch NP

Knob: ⅞" x ⅞". per dozen **$11.84**

COMMODE TURNS



No. 213

Stamped Brass Commode Turns

1 inch diam., knob, plain steel spindle.

Polished Brass finish .... Per doz. **$1.00**

NOTE:—Illustration shows with rose and threaded spindle.

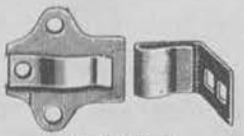
No. 213 is without rose and has plain spindle.

ELBOW CATCHES

Cast Iron—Japanned
Nickel

No. J03222 .... Per doz. $ .92
T03222 1.10

Four dozen in a box.



03230, 03231

Size ⅞ x ⅞ in.

No.		Per Doz.
03230	Wrot Steel Plated	$1.20
	Size 1⅜ x 1⅜ in.	
03231	Wrot Steel Plated	1.43

ALLIGATOR GRIPPER CATCHES

For Book Cases, Cabinets and Cupboards.

25 x 3	[illegible]
25 x 4	1.58
25 x 5	2.32

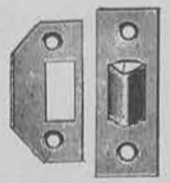
ORNER BRACKETS

Blued Steel Spring, Brass Strike

No. 03234 .... Per doz. .72

Three dozen in a box with screws

FRICTION CATCHES

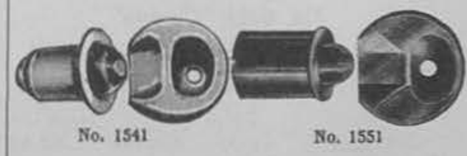


Wrought Brass

Easy Spring. Length 2⅜ in. Face ¾ in.

No. 3232 .... Per doz. **$2.94**

Three dozen in a box.



No. 1541 No. 1551

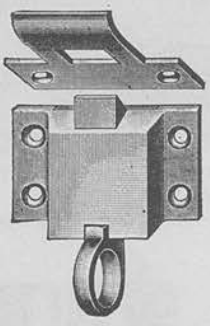
Non-Adjustable Steel Latch

(Cuts full size)

No. 1541 .... Per doz. **$0.50**
1551 **.55**

Twelve dozen in a box without screws.

TRANSOM CATCHES



Nos. 03277 and 3277 "Corbin"

Wrought steel or bronze; spring bolt; size 1 9/16 x2⅛ ins. With universal strike which is suitable for all conditions.

Wrought Steel

Nos.	Finish	Dozen List
R-03277.	Antique Copper	$4.40
EA-03277.	Dull Brass	4.40
E-03277.	Polished Nickel	4.84

Wrought Bronze

Nos.	Finish	Dozen List
B-3277	[illegible]	.24
		.24

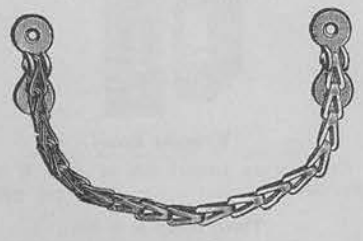
[illegible] doz.
6.60
6.60

Cast Bronze 1⅜ x 2¼"

R3275	Antique Copper	12.76
EA3275	Dull Brass	12.76

One dozen in a box.

TRANSOM CHAINS



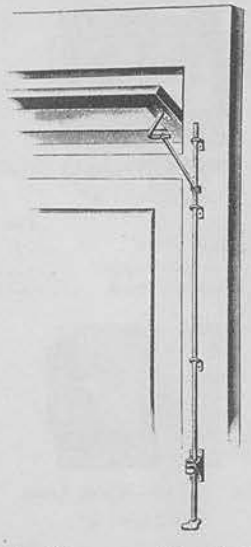
No. 0201 "Corbin"

Plated wrought steel heavy safety pattern chain in lengths as below; 1⅝x⅝ ins. plate at each end.

No.	Finish	Dozen List
R-0201x10".	Antique Copper	$3.12
EA-0201x10".	Dull Brass	3.12
DB-0201x10".	Dull Bronze	3.12
E-0201x10".	Polished Nickel	3.44
R-0201x12".	Antique Copper	3.36
EA-0201x12".	Dull Brass	3.36
DB-0201x12".	Dull Bronze	3.36
E-0201x12".	Polished Nickel	3.70

1 dozen in a box, with screws.

TRANSOM LIFTERS



For Transoms Hinged at Top or Hung on Centres

Wrought Steel—Coppered

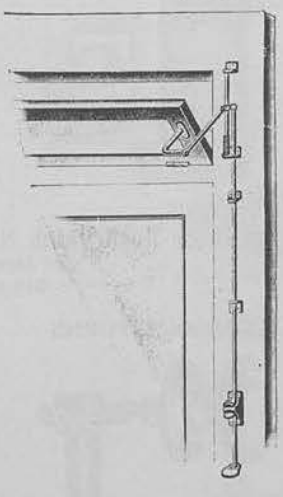
No. C083—¼ inch Rod

	3 ft.	4 ft.
Length		
Each	$ .94	1.02

No. C084—5/16 inch Rod

	4 ft.	5 ft.
Length		
Each	$1.30	1.50

Five in a package



For Transoms Hinged at Bottom Opening In

Wrought Steel—Coppered

No. C094—5/16 inch Rod

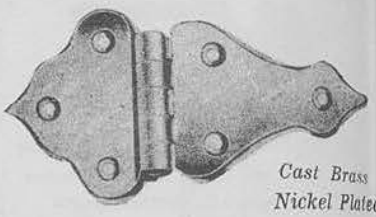
	3 ft.	4 ft.
Length		
Each	$1.50	1.68

C095—⅜ inch Rod

	4 ft.	5 ft.
Length		
Each	$2.10	2.44

Five in a packa[illegible]

REFRIGERATOR HINGES

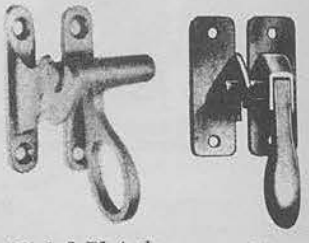


Cast Brass Nickel Plated

— 4 inches over all, 2½ inches wide,

	Price per Doz.
⅜ Offset or Flush	
No. 531	13.12

REFRIGERATOR CATCHES



Nickel Plated

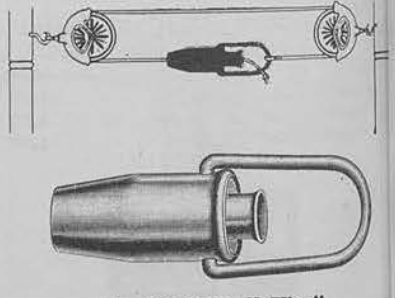
Fastener—Cast Brass. Can be used either flush or offset, right or left. 2⅛ x ¾ inch Base 2¼ inch Handle.

Wrought Steel Furnished Flush half Left Hand and half Right Hand unless otherwise specified. ¾ x 3 inches.

	Price per Doz.
No. 1033	$8.23
No. 1033½	$7.62

Packed one dozen in box, with screws.

CLOTHES LINE CLAMPS



No. 7070 "Pull-Tite"

Designed to permit instant tightening or loosening of a rope or wire; has a multitude of uses; takes any size from 3/16 to ⅜ in.; solid brass; heavy bail—sturdy tube; length over all, 3⅝ ins.

No. 7070. Dozen list..... $7.00

1 dozen on a display card.

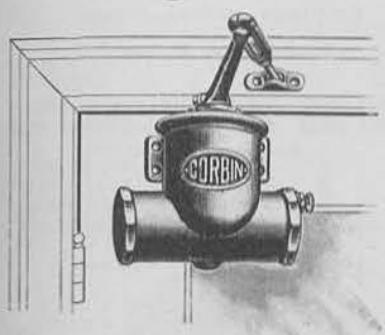
CORBIN DOOR CLOSERS

Reversible. Cast iron, bronze finish. Light, long and resilient spring with even distribution of tension. Door under control at all times.

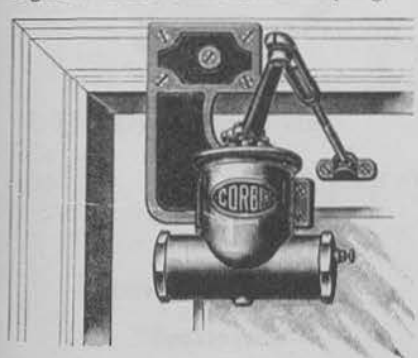
Not affected by extremes of temperature. Has but four moving parts.

Corbin		Each
1	For screen doors. Weight each 6¼ lbs.	$9.46
2	For any light inside door not over 7 x 3 ft. Weight each 8¼ lbs.	12.10
3	For heavy inside doors or heavy outside doors not larger than 7 x 2½ ft. Weight each 13½ lbs.	14.74
4	For outside doors not larger than 7½ x 3 ft. Weight each 17¾ lbs.	17.60
5	For doors not larger than 7½ x 4 ft. Weight each 22 lbs.	23.32
6	For extra high and heavy doors, in public buildings, hotels, depots, etc. Weight each 27 lbs.	29.26

One in box with screws



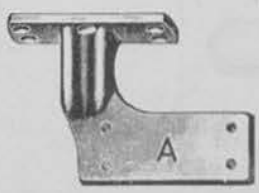
Right-hand door with check and spring



APPLIED TO EITHER RIGHT- OR LEFT-HAND DOORS WITHOUT CHANGE

No. 28 Bracket
Left-hand door with check and spring

SOFFIT BRACKETS

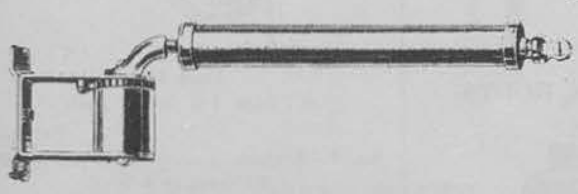


Corbin	Each
25 x 2	$1.12
25 x 3	1.32
25 x 4	1.58
25 x 5	2.32

CORNER BRACKETS

Corbin	Each
26 x 2	$1.92
26 x 3	2.18
26 x 4	2.78
26 x 5	3.50

CORBIN SCREEN DOOR CLOSERS
Air Control



Reversible, adjustable tension requires 2¼ inch space between doors.

No. 21 length overall 18¾ inch, each **$2.48**
One in box with screws

Right or Left Hand requires 1⅜" space between doors. Speed of closing. Adjustable.

No. 18 length over all 14¾ inch ..... Each **$1.20**
One in box with screws

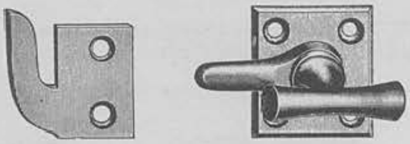
CORBIN CLOSER SPRINGS

	Each
#2	$1.54
#3	1.76
#4	2.20
#5	3.30

DOOR CLOSER LIQUID

Size	1 Qt.	½ Gal.
Each	$3.00	$5.00

CASEMENT FASTENERS



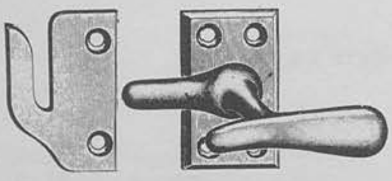
Wrought Steel Plate
Cast Iron Turn
Size 1¾ x 1⅛ in.

		Per dozen
EAT 03162	R & M Dull Brass..	$2.64
RT 03162	R & M Antique Copper	2.64

Wrought Bronze Plate
Cast Bronze Turn

		Per dozen
EA 3162R	R Dull Brass......	$7.16
EA 3167R	Dull Brass	7.16

One dozen in a box



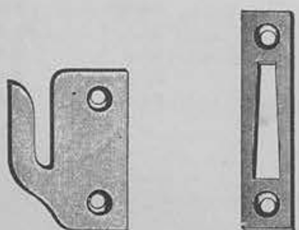
Cast Iron
Size 2⅛ x 1⅛ in.

		Per dozen
EAT 03168	R & M Dull Brass.	$3.30
RT 03168	R & M Antique Copper	3.30

Cast Bronze

EA3168R	Dull Brass	$8.80

One dozen in a box



Rim Strike **Mortise Strike**
Both Rim and Mortise Strikes
Packed with Steel or Iron Fasteners

Window Stop Adjusters

T 0181 **T 0183**

		Per Gross
EAT 0181	Dull Brass	$1.44
EAT 0183	Dull Brass	$2.86

One gross in a box

CASEMENT FASTENERS

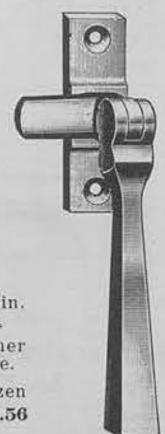
Cast Bronze
Length 6 inch
Width 3¼ inch

No. EA3172R

Per dozen
Dull Brass.. **$9.90**
Six in a box

No. 3175
Same as No. 3174 With half inch offset. State hand.

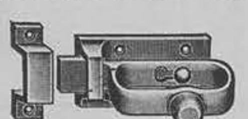
No. 3175.................. **$8.80**
Six in a box



Cast Bronze
Reversible
Plate size 2¼ x ¾ in.
Lever size 3½ inch.
Can be supplied either rim or surface strike.

Per dozen
No. EA3156S ..$10.56
Six in a box

LAVATORY SLIDE BOLTS



No. 570 — "Corbin"

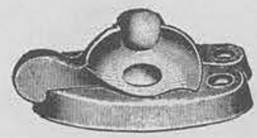
Cast Bronze—3x1⅝ ins. plate. Loop handle bolt with rubber bumper; with strike.

No.	Finish	Each List
E-570.	Polished Nickel	$2.20
CR-570.	Polished Chromium	2.74

6 in a box, with screws.

LAVATORY SPRING HINGES, Strikes, etc., can be supplied in any finish to special order. Prices on application.

SASH FASTENERS



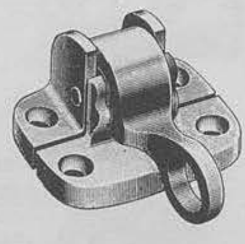
Cast Iron
Size 2½ x 1½ inch

		Per dozen
No. EAT 01829	Dull Brass....	$1.32
No. RT 01829	Antique Copper	1.32
No. ET 01829	Nickel Plated..	1.46

Cast Bronze Polished

		Per dozen
No. EA 1829	Dull Brass	$7.04
No. E 1829	Nickel Plated	7.74

One dozen in a box



Cast Iron
Size 1⅞ x 2⅜ inch

		Per dozen
No. EAT	01840	$4.84

One dozen in a box

SIDE SASH FASTENERS

"Garretson's"

Cast Iron
Size 1¾ x ⅞ inch

		Per dozen
No. 2	Bronze	$1.60

Six dozen in a box

WINDOW SPRING BOLTS

Iron, Coppered

		Per dozen
No. 87	Length case 1⅝, 3¼ inch overall	$0.60

Six dozen in a box

CORNER IRONS

No. 995
Wrought Steel Mending Plates

Size, inches	2	2½	3	3½
Width, inches	⅜	⅝	¾	¾
Per gross	$2.30	2.70	3.20	4.00

Size, inches	4	5
Width, inches	⅞	1
Per gross	$4.40	5.50

2 dozen in a box

No. 997—Wrought Steel

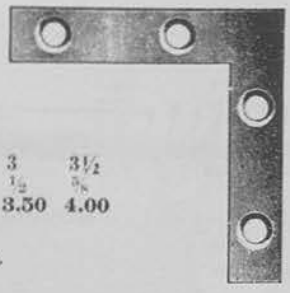
Size, inches	1	1½	2	2½	3
Width, inches	½	½	⅝	⅝	¾
Screw holes	2	4	4	4	4
Per gross	$1.90	2.00	2.70	3.50	5.50

Size, inches	3½	4	5	6
Width, inches	¾	⅞	1	1⅛
Screw holes	4	4	6	8
Per gross	$7.70	10.00	12.40	16.60

Size is length of sides.

Sizes 1 to 3½ inches—2 dozen in a box.
Sizes 4 to 6 inches—1 dozen in a box.

No. 999
Wrought Steel
Flat Corner Irons



Size, inches	2	2½	3	3½
Width, inches	⅜	½	½	⅝
Per gross	$2.20	2.70	3.50	4.00

Size is length of sides.
2 dozen in a box

House Numbers

1234567890

No.		per Doz.
	Size	
130	Cast Bronze, Polished	
	2 in.	$1.84
	3 in.	2.38
	4 in.	3.96

Furnished with round head screws

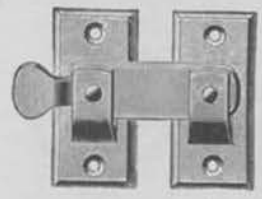
1234567890

Size 3 in.

No.		Per Doz.
L118	Cast Aluminum, Roll Polish	$1.88
B118	Cast Bronze, Roll Polish	2.10

Furnished with escutcheon pins

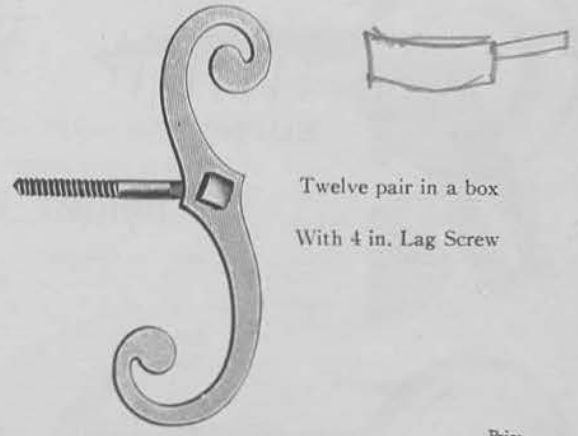
SHUTTER BARS



Wrought Steel

	Per dozen
No. 1455-OC—Old copper finish..	$3.90
No. 1455-DB—Dull brass finish...	3.90

SHUTTER DOGS

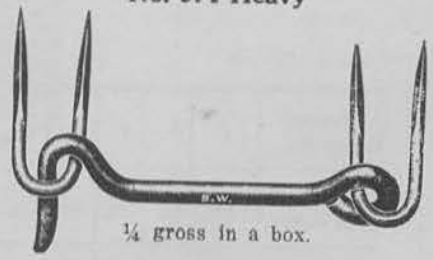


Twelve pair in a box

With 4 in. Lag Screw

No.	Size	Wrot Steel	Price per Doz. Pair
D0917 G	6¾ in.	Dead Black on Cadmium	$14.40
0917	6¾ in.	Cadmium Plated	12.60

HOOKS AND STAPLES
No. 974 Heavy



¼ gross in a box.

Heavy Wrought Hook; with 2½ inch staples; bright finish.

Size, inches	¼x4	¼x5	⅝x5	⅝x6
App. wt. gross, lbs.	25	26	29	33
Per Gross	$6.00	9.00	9.60	12.60

WROUGHT STAPLES

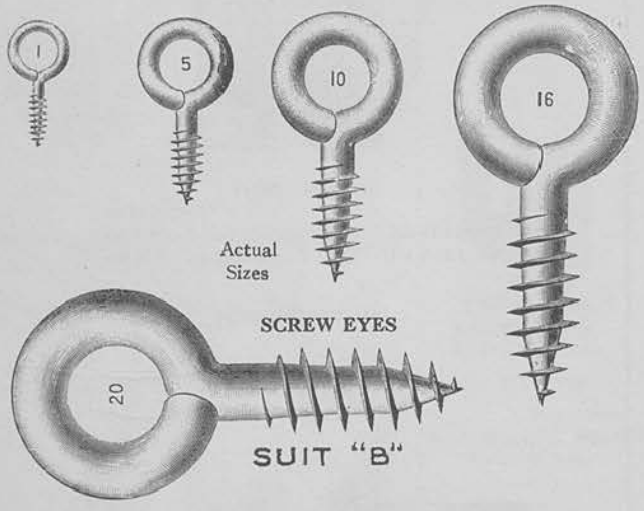
BRIGHT WROUGHT IRON; Polished

No. 976

Length, inches	1½	2	2½	3	3½	4
Gauge Wire	135	148	177	192	207	207
Wt. per gross, lbs.	1½	2	4¾	6	9	11
Per Gross	$ .60	.76	1.00	1.40	1.50	2.20

2½-inch and smaller, 1 gross in a box.
Larger sizes, ½ gross in a box.

BRIGHT WIRE GOODS



SUIT "B"

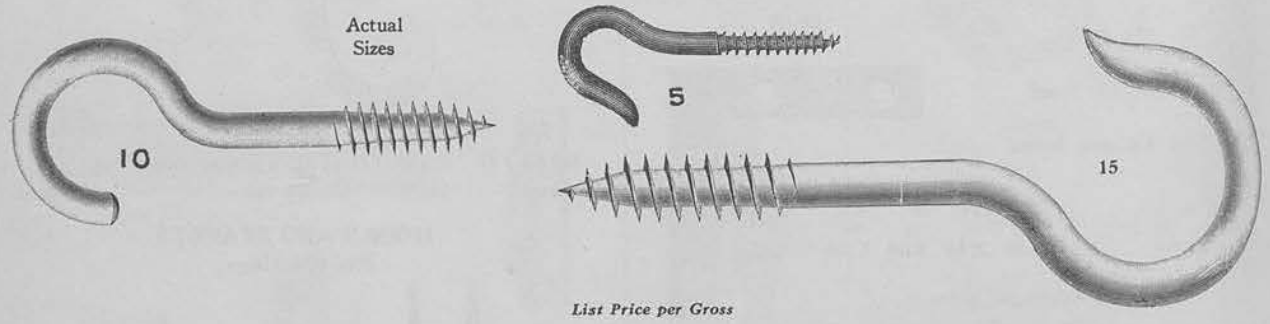
MEDIUM EYES

1	.073	7/32	13/16	1/2	.244	$0.40
2	.084	15/64	7/8	1/2	.316	.40
3	.095	1/4	1	9/16	.446	.40
4	.106	9/32	1	9/16	.619	.40
5	.117	9/32	1 3/32	5/8	.734	.45
6	.128	5/16	1 1/8	5/8	.964	.50
7	.150	5/16	1 1/4	11/16	1.42	.55
8	.161	11/32	1 5/16	3/4	1.84	.65
9	.172	3/8	1 7/16	3/4	2.17	.75
10	.183	3/8	1 9/16	7/8	2.67	.85
11	.193	13/32	1 3/4	1	3.29	1.00
12	.205	15/32	1 7/8	1 1/8	3.90	1.30
13	.227	15/32	2	1 1/8	4.88	1.60

Packed one gross in a box.

BRIGHT WIRE SCREW HOOKS

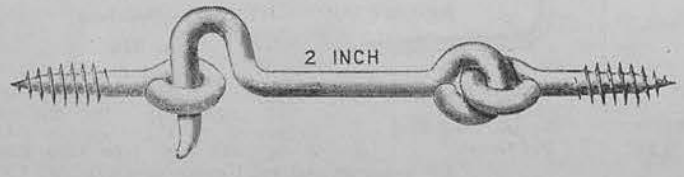
SUIT "M"



List Price per Gross

Screw Gauge No...	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20
Length over-all in inches.	1⅜	1½	1⅝	1¾	1⅞	2	2¼	2½	2¾	3	3¼	3½	3¾	4	4¼	4½	4¾
Bright Wire.	$ .50	.60	.70	.70	.75	.85	1.00	1.10	1.25	1.50	1.50	2.00	2.25	2.75	3.50	4.00	4.75

BRIGHT WIRE GATE HOOKS AND EYES



S.W.G. No.	Length in Inches of Hook	Weight per Gross	Packing to Box	List Price per Gross
6	1 1/2	3.09	1 Gro.	$1.75
7	2	4.85	1 Gro.	2.00
8	2 1/2	6.48	1 Gro.	2.50
9	3	8.16	½ Gro.	3.00
10	3 1/2	10.32	½ Gro.	3.50
11	4	12.58	½ Gro.	4.00
13	5	20.03	½ Gro.	6.00
13	6	21.47	½ Gro.	7.50
13	8	25.01	3 Doz.	9.00
13	10	27.65	2 Doz.	10.00
13	12	30.89	2 Doz.	12.50

BRASS WIRE GOODS

BRASS CUP HOOKS

Upset Shoulder.

Heavy Base.

The Base will not Come Off the Hook

Projection, inches	½	5/8	¾	⅞	1
Size of Wire, No.	15	14	13	12	11
Diameter of Base, in.	⅜	7/16	7/16	½	½
Weight per gross, lbs.	.25	.37	.55	.81	1.25
Price, Packed per gross	**$1.62**	**$1.66**	**$1.74**	**$1.94**	**$2.16**

No. 181—Solid Brass, Dipped and Lacquered

SQUARE CORNERED SCREW HOOKS or CORNICE HOOKS

Bright

Screw Gauge No.	Length Overall Inches	Weight per gross Lbs.	Steel Wire List
4	1¼	.532	**$0.70**
5	1½	.806	**.75**
6	1¾	1.10	**.85**
7	2	1.65	**1.00**
8	2¼	2.20	**1.10**
9	2½	2.85	**1.50**
10	2¾	3.60	**2.00**
10	3	4.06	**2.25**

Packed one gross in a box.

CABIN DOOR OR CASEMENT WINDOW HOOKS

POLISHED CAST BRASS; Lacquered

No. 632			
Length, inches	**2½**	**3**	**4**
Size plates, inches	1⅛x⅞	1⅛x⅞	1¼x1
Takes Screws, Nos.	5	5	5
Wt. per dozen, lbs.	1	1¾	1¼
Per Dozen	**$3.03**	**3.87**	**5.21**

Light Hinge Hasps

For baskets, boxes, chests, etc. Size, length of slotted part 2½ inch.

No.	Per doz.
346C—Brass plated steel	**$2.30**

HASPS

Extra Heavy Wrought Steel Hasp

For absolute security against removal, a carriage bolt can be used through the square hole. Length overall 7½ inches, length of slotted part 4 inches. Width 1¾ inch.

No.	Finish	Per doz.
941J	Black Japanned	**$6.80**
1356	Galvanized with brass pin	**$9.60**

Half dozen in a box.

No. 815—Safety Hasp

Wrought steel, plain finish.

Size, length of strap	3"	4½"	6"
Per dozen	**$1.10**	**1.32**	**2.40**

One dozen in a box.

No. 915—Safety Hasp

Wrought steel, plain finish. The loose staple allows for adjustments, and permits the padlock to lie flat.

Size, inches	3	4½	6
Per single doz.	**$1.20**	**1.46**	**2.50**

One dozen in a box.

SAFETY DOUBLE HINGE HASPS

For Boxes, Tool Chests, Lockers, Etc.

BRIGHT WROUGHT STEEL

When hasp is closed the screw holes are concealed, making it impossible to remove hasp wthout first removing padlocks.

Strap Length, ins.	4½	6
Width at joint, inches	1⅛	1⅝
Between hinge centres, ins.	1¾	2½
Screw Holes	7	7
Takes F. H. Screws, Nos.	7	9
Weight per dozen pairs, lbs.	6	7
No. 925—Per Dozen	**$4.00**	**6.20**

One dozen 4½ inch, half dozen 6 inch in ... box, without screws.

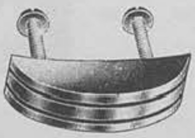
CORBIN MODERN KITCHEN HARDWARE

A line of fine Kitchen Cabinet Hardware of ultra-modern design. "Corbin" quality throughout. Unusually attractive in pattern, extra durable in finish. All pieces are of Brass or White Metal, heavily Chromium Plated and buffed to a gleaming lustre.

Drawer Pulls

Fasten with Machine Screws from the inside.

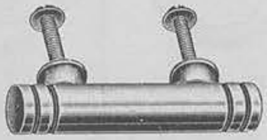
1350
Size ½ x 2 in.
Center to Center of Screws 1¼ in.
Projection 11/16 in. — Weight Dozen
Die Cast Metal
Plated **$4.96** Doz. 2⅛ lbs.



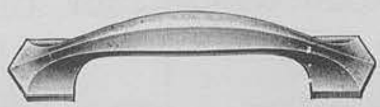
1351
Size ½ x 2 in.
Center to Center of Screws 1¼ in.
Projection 11/16 in. — Weight Dozen
Die Cast Metal
Plated **$5.58 Doz.** 2⅛ lbs.
Top and bottom surface of above drawer pulls is slightly concave to afford good grip.

1344
Size 11/16 x 4¼ in.
Center to Center of Bases 3½ in. — Weight Dozen
Cast Bronze, Polished **$6.82** Doz. 2¼ lbs.

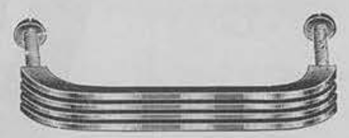
1352
Size ⅝ x 2 in.
Center to Center of Screws 1¼ in.
Projection ¾ in. — Weight Dozen
Extruded Brass
Plated **$6.88** Doz. 2¾ lbs.



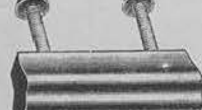
1354
Size 9/16 x 2¾ in.
Center to Center of Screws 1½ in.
Projection 1" — Weight Dozen
Extruded Brass
Plated **$7.50** Doz. 2¾ lbs.



1345
Size 11/16 x 4¼ in.
Center to Center of Bases 3 7/16 in. — Weight Dozen
Cast Bronze, Polished **$6.82** Doz. 2¼ lbs.



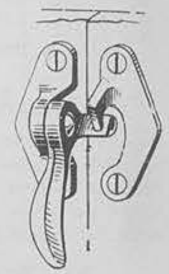
1346
Size ½ x 3⅝ in.
Center to Center of Screws 3¼ in.
Projection 13/16 in. — Weight Dozen
Cast Bronze, Polished **$6.32** Doz. 1¾ lbs.



1353
Size ⅝ x 2 in.
Center to Center of Screws 1¼ in.
Projection ¾ in. — Weight Dozen
Extruded Brass
Plated **$6.88** Doz. 2⅝ lbs.

Cabinet Catches

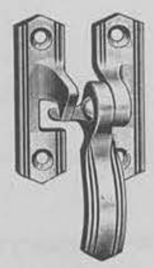
3264 Right Hand



3264 Left Hand
Applied to Flush Door

Not reversible. State hand.
Plate 1¾ x 11/16 in. Lever 1¾ in.
Strikes 1¾ x 11/16 in.

No.		
CR **3264**	FLUSH	**$6.06** Doz.
CR **3265**	OFFSET	**6.06** Doz.

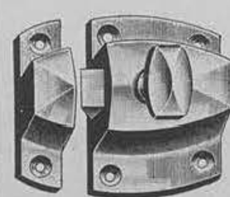


3266 (right hand)

Not reversible.
State hand.
Plate 2 x 9/16 in.
Lever 1¾ in.
Strike 2 x 9/16 in.

No.			
CR **3266**	FLUSH,	Plated	**$6.06** Doz.
CR **3267**	OFFSET,	"	**6.06** Doz.

Cupboard Turns



CR 3268

Size 2⅛ x 1¾ in.
Strike 2 x ½ in.

Die Cast
Plated

$8.26 Doz.

Blue, Black, Red and Green filled lines are very attractive and can be furnished to special order at no additional charge.

CORBIN MODERN KITCHEN HARDWARE

Cabinet Butts

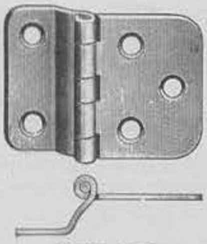
0231, 231

For Flush Doors
Size 1½ x 1¾ in.
Width of Flaps ½ in. and 1¼ in.

No.		Doz. Pr.
CR 0231	**Wrot Steel,** Plated	**$4.00**
CR 231	**Wrot Brass,** Polished	**5.84**

For Lipped Doors
Sizes 1½ x 1⅞ in.
Offset ⅜ in.
Width of Flaps ⅝ in. and 1¼ in.

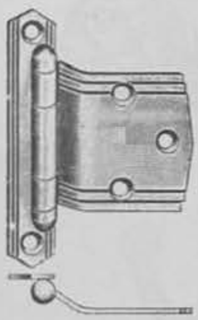
No.		Doz. Pr.
CR 0232	**Wrot Steel,** Plated	**$4.00**
CR 232	**Wrot Brass,** Polished	**5.84**



0232, 232

CR 38, 39

	Doz. Pr.
2" x 1½"	**$12.42**

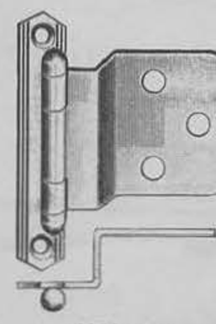


	Doz. Pr.
0236	**$4.50**
236	**6.60**

SEMI-CONCEALED
FOR LIPPED DOORS

Size 2¾ x 2 in.
Jamb Leaf 2¾ x ½ in.
Door Leaf 1½ x 1⅝ in. Offset* ½ in.

No.		
0237	**Wrot Steel,** Plated	**$4.50**
237	**Wrot Brass,** Polished	**6.60**



0237, 237

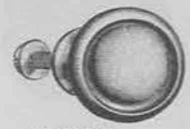
Door Leaf is attached to back of door, Concealed when door is closed.

* Door leaf can also be furnished ⅜ in. or ¾ in. offset, when so ordered.

Blue, Black, Red and Green filled lines are very attractive and can be furnished to special order at no additional charge.

Drawer Knobs

Size	Projection	Doz. Pr.
1 in. Dia.	1 in.	**$3.76**
1¼ in.	1 3/16 in.	**4.12**



CR2543

CR2542

Size	Projection	Doz.
1 in. Dia.	1¼ in.	**$3.76**

Size	Projection	
¾ in. Dia.	11/16 in.	**$3.30**
1 in. Dia.	1 1/16 in.	**3.78**
1¼ in. Dia.	1 3/16 in.	**4.38**

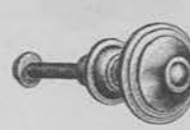
CR2551

Size 1⅛ in. Dia. Projection 1 3/16 in.

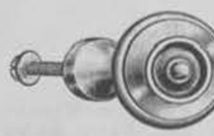
CR2539

Size	Projection	Doz.
1¼ in. Dia.	1⅜ in.	**$6.60**

Doz.
$6.32



CR2536



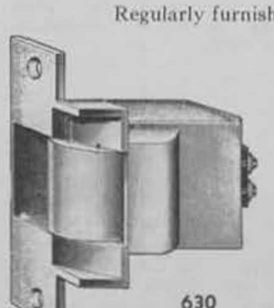
2534

Size	Projection	Doz.
1¼ in. Dia.	1⅜ in.	**$6.60**

These drawer knobs carried in stock in **CR** (chromium plated, polished) finish only. Made in other finishes to order.

Electric Door Openers

Regularly furnished for 6 to 12 volts D.C.



630

Pusher
Cast Bronze
1¾ x 1⅝ x ½ in.

Iron case 2⅜ x 3⅛ x 1 in.
Front 4½ x 1¼ in.

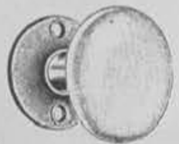
No.	Front and Trip	For Locks	Each
	Cast Bronze		
630	Polished	5131, 5231, 5251, 5133, etc.	**$13.50**

CORBIN DOOR KNOBS AND LEVER HANDLES

805

805 Rim Mineral Door Knobs
Per Doz. Pairs **$4.56**

2¼ inch diameter. Cast iron japanned necks and rose. Six pairs in a box.



820
825

820 Mortise Porcelain Door Knobs
Per Doz. Pairs **$4.56**

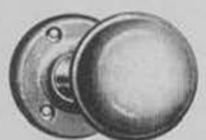
825 Rim Porcelain Door Knobs
Per Doz. Pairs **$4.56**

2¼ inch diameter. Cast iron japanned necks and roses. Six pairs in a box.

855

855 Rim Jet Door Knobs
Per Doz. Pairs **$4.56**

2¼ inch diameter. Cast iron japanned necks and rose. Six pairs in a box.



01623½

Wrought Steel Mortise Door Knobs, 2¼ inch diameter.
Six pairs in a box.

BP01623½ Berlin Bronze finish. Per doz. Pairs **$4.56**

B 01623½ Polished Bronze finish. Per Doz. Pairs **$5.28**

R 01623½ Old Copper finish
Per Doz. Pairs **$5.28**

EA01623½ Dull Brass finish
Per Doz. Pairs **$5.28**

These Knobs are regularly furnished Mortise but can be made suitable for use with Rim Locks or Latches by eliminating one rose.

01419½
1419½

Mortise One Piece Simplex Shank Door Knobs, 2¼ inch diameter. Six pairs in a box.
Wrought Steel

R01419½ Old Copper finish
Per Doz. Pairs **$7.44**

EA01419½ Dull Brass finish
Per Doz. Pairs **$7.44**

Wrought Brass and Bronze

A1419½ Polished Brass finish
Per Doz. Pairs **$16.20**

B1419½ Polished Bronze finish. Per Doz. Pairs **$16.20**

E1419½ Polished Nickel finish. Per Doz. Pairs **$17.76**

418

Fluted Pressed Glass Door Knobs with wrought brass simplex shanks and roses. 2 inch diameter. Six pairs in a box.

A418 Polished Brass finish
Per Doz. Pairs **$14.40**

412

Round, flat top, Pressed Glass Door Knobs with wrought brass simplex shanks and roses. 2 inch diameter: Six pairs in a box.

A412 Polished Brass finish
Per Doz. Pairs **$14.40**

8148

Pointed top, Genuine Cut Glass Door Knobs with wrought brass simplex shanks and roses. 2¼ inch diameter. Six pairs in a box.

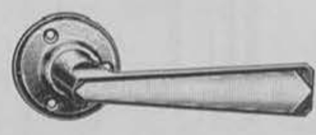
8148 Polished Brass finish
Per Doz. Pairs **$36.60**

8104¼ Pressed Glass
Per Doz. Pairs....... **$15.00**

.02020

Cast Iron Lever Handle and Rose, 2½ inch handle, 1¾ inch diameter rose.

EA02020 Dull Brass finish
Each **$ .92**



02005

Cast Iron Lever Handle and Wrought Steel Rose, 3⅝ inch handle, 1¾ inch diameter rose.

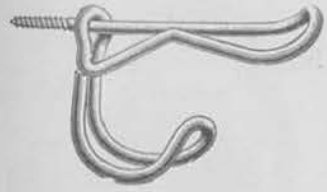
KE02005 Dull Nickel Oxidized and and Relieved finish. Each **$2.28**

7025

Hammered, Colonium Metal Lever Handle and Rose, 2⅞ inch handle, 2 inch diameter rose.

HPE 7025 Forged Iron finish
Each **$2.88**

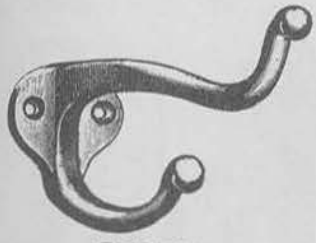
HAT AND COAT HOOKS



Coppered Steel Wire

1 inch size.....Per gross **$1.80**

Half gross in a box.



C012321/2

Cast Iron, Projection 3 in.

No. C 012321/2 Copper finish,

Per gross **$5.18**

3 dozen in a box.

T01239

Cast Iron Plated

Projection 3 in.

		Per Gross
R-T01239	Antique copper	**$9.02**
EA-T01239	Dull brass	**$9.02**

2 dozen in a box.

No 61

61 Nickelled **$2.08** Doz.

When in a hurry for goods
Send us your orders.
We ship promptly.

Projection 2 1/2"
Cast Iron Plated

		Per gross
R-T01210	Antique copper	**$9.90**
EA-T01210	Dull brass	**$9.90**

Two dozen in a box

Projection 3 1/2 in.
Cast Iron Plated

		Per gross
R-T01211	Antique copper	**$11.56**
EA-T01211	Dull brass	**11.56**

Two dozen in a box

Projection 4 in.
Cast Iron Plated

		Per gross
R-T01212	Antique copper	**$17.60**
EA-T01212	Dull brass	**17.60**

Two dozen in a box

No. 203
Wardrobe Hooks

Cast Iron, Plated. Projection 2 1/4 inches.

Finishes	Per doz.
Dull Brass	**$1.00**
Old Copper	**1.00**

2 dozen in a box

PEW HOOK

Cast Iron Plated Per dozen

EA-T01204 Dull brass **$1.65**

Two dozen in a box

Costume Hooks

Height overall 5 1/4 inches

No. 400

Cast Brass—Polished

Per dozen **$7.26**

No. 400 1/2

Brass Plated—Polished

Per dozen **$2.66**

Half dozen in a box

No. 8265
Hall or Office Hook

Projection 4 7/8 inches

Finishes	Per doz
Bronze	
Nickel-Plated	**$14.64**

Half dozen in a box

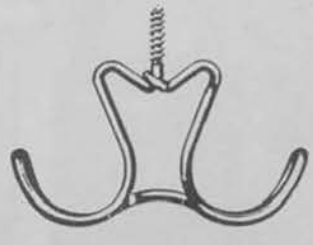
Ceiling Hooks

Cast Iron Plated

Per gross

EA-T01240 Dull brass **$15.84**

One dozen in a box



THE ""FAVORITE"
CEILING HOOK

No. 10 wire.

Coppered.

No. 082 .....**Per gross, $3.26**

One-half gross in box.

Illustrations
One-Half Size

CORBIN

NICKEL SILVER KEYS AND BLANKS

GENUINE P. & F. CORBIN BLANKS

97 99 26 27 23¼ 24 57 57⅛

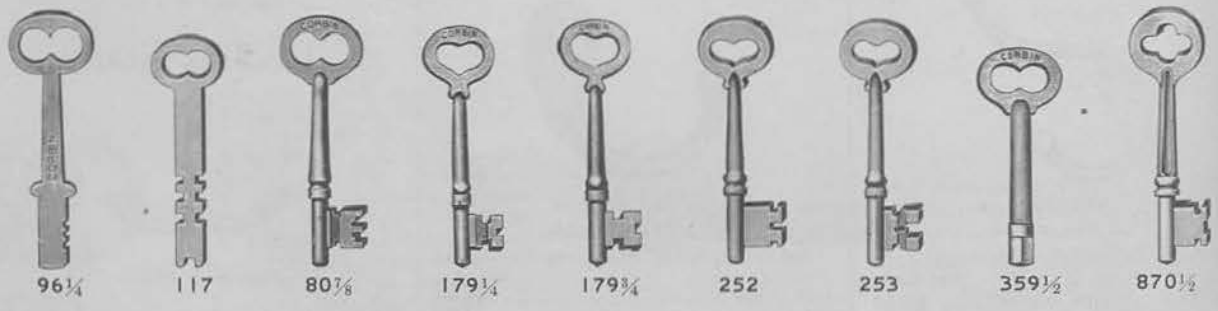
027 023¼ 057 057¼ 057½ 057¾

For P. & F. Corbin Locks

WROUGHT STEEL DOOR KEYS AND BLANKS

GENUINE P. & F. CORBIN (Nickel-Plated)

Illustrations
One-Half Size



96¼ 117 80⅞ 179¼ 179¾ 252 253 359½ 870½

BRASS KEY

BRONZE KEY

39 145

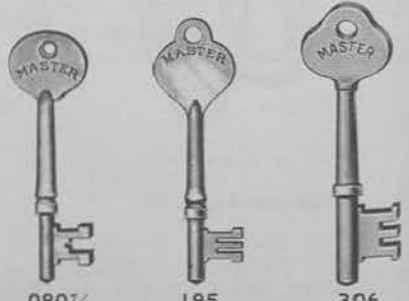
STEEL FOLDING KEY
Nickel-Plated

190½

IRON KEYS
Nickel-Plated

011¼ 110

STEEL MASTER KEYS
Nickel-Plated



080⅞ 195 306

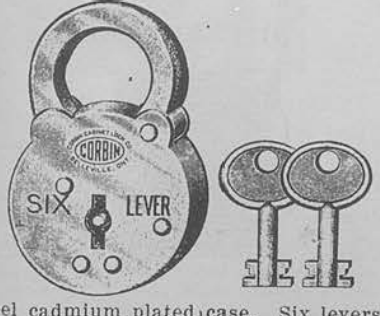
For P. & F. Corbin Locks

CORBIN PADLOCKS

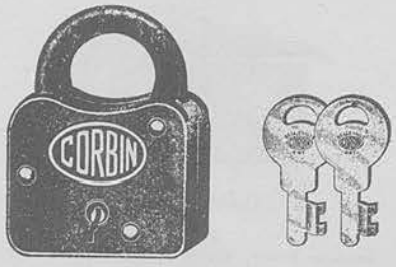
Steel black japanned, Dial combination type, changes all different.
No. C9920 x 2" ..... per doz. **$11.00**

Die cast body, satin silver finish, Two keys, 3 changes.
No. C9953 x 1½" ..... per doz. **$4.18**

Die cast body, wrinkle green finish, Two keys, disc tumbler, 200 changes.
No. C9913X x 1 9/16" .... per doz. **$5.50**
Can be furnished up to 180 changes.



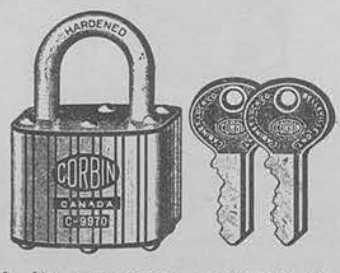
Steel cadmium plated case. Six levers, two keys, 12 changes.
No. C901G x 2" ..... per doz. **$3.85**



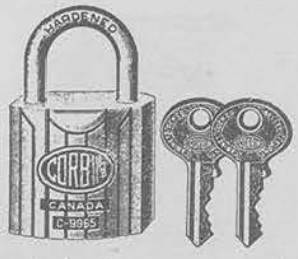
Steel cadmium plated case, Two keys.
No. C9832G x 2" ..... per doz. **$2.09**

Cast Brass Case
Size 2¼ inch
Six secure brass levers
No. C0995A Per dozen..... **$16.50**
As above with 9 inch chain
No. C0995AC Per dozen..... **$18.15**
½ dozen in a box

Die cast body, wrinkle green finish, Two keys, disc tumbler, 200 changes.
No. C9914X x 1 3/16" ....per doz. **$8.14**
Can be furnished up to 180 changes

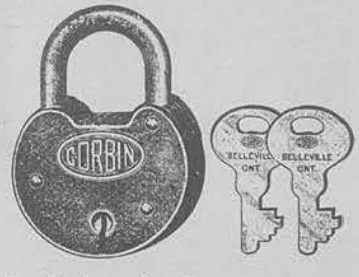


Solid die cast body, cadmium plated, Pin tumbler, all different with two keys.
No. C9970 x 1¾" .... per doz. **$15.40**
Can be master keyed.



Die cast body, black wrinkle finish, Pin tumbler, all different with two keys.
No. C9965 x 1½" .... per doz. **$11.55**
Can be master keyed.

Die cast body, dull black wrinkle, Two keys, 18 changes.
No. C9985 x 1⅝" ..... per doz. **$4.40**



Steel cadmium plated case, Two keys, 6 changes.
No. C2956G x 2" ..... per doz. **$2.09**

Extruded Brass Metal Case
Pin tumbler construction

		Per doz.
No. C2881	Size 1½ inch....	**$28.49**
No. C2882	Size 1¾ inch....	**33.00**
No. C2883	Size 2 inch.....	**35.64**

Key changes all different
Can be master keyed and supplied with chain
One in a box

All above can be furnished keyed alike or with chain to special order.

CHEST LOCKS

Corbin (Brass)

Single Link, Back Spring.

No.	Size	Per. doz.
01	1¼x⅞ inch	**$2.50**

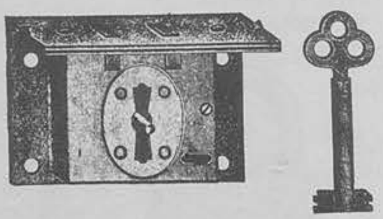
One dozen in a box.

Corbin (Steel)

Double Link, Back Spring.

No.	Size	Per doz.
32	2 x1¼ inch	$4.20
34	2½x1½ inch	7.00
36	3 x1¾ inch	8.00

One dozen in a box.



Corbin (Steel)

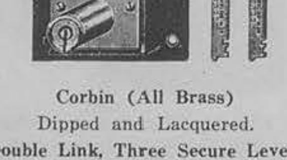
Four hook tumblers, secret words one nickel plated key to each lock.

All different in a dozen.

No.	Size	Per doz.
C-80	2½x1¾ inch	$16.50

One dozen in a box.

CYLINDER CHEST LOCKS



Corbin (All Brass)

Dipped and Lacquered.

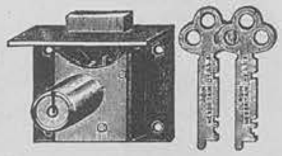
Double Link, Three Secure Levers

⅞ inch from selvedge to centre of cylinder. Two polished nickel plated steel keys with each lock. Keys all different in a dozen. Regularly stocked for ⅞ and 1⅛ inch wood.

No.	Size	Per doz.
0142P	2x1½ inch	$12.65
0140	1½x1¼ inch	11.00

One dozen in a box.

DRAWER LOCKS

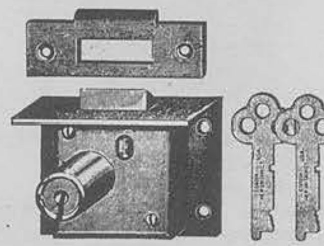


Corbin (Steel)

Secure lever, Tube $\frac{17}{32}$" diameter. Broad heavy bolt. Two keys. Made regularly for ⅞ inch wood.

Size 1¾x1½ inches

No.	Per doz.
590—With 12 Key changes	**$5.54**
590—Alike—Keyed Alike	**$5.54**



Corbin—Self-Locking

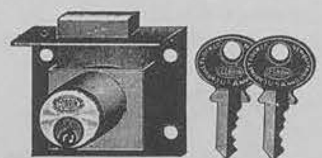
All Brass

With Cylinder Cut for both Cupboard and Drawer

Broad heavy latch bolt, 3 levers. Two nickel plated flat steel keys all different in a dozen.

No.	Size	Per doz.
0601½	2¼x1¾ inch	$17.80

One dozen in a box.



Corbin (All Brass)

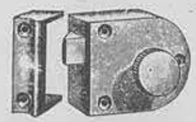
With Pin-Tumbler Cylinder

Broad heavy bolt, Cylinder ⅞ inch in diameter. 2 nickel silver keys to each lock. No two locks alike. Number of key changes unlimited. Made regularly for ⅞ inch wood, but can be made for ¾ inch wood without extra charge.

No.	Size	Per doz.
0666	2 - 1⅝ inch	$26.40
0666½	As above, self locking...	28.40

One lock in a box.

LATCHES AND LOCKS



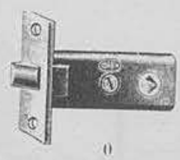
03213

Secret Gate Latch

EA03213 Dull Brass finish

Cast Iron Case 2 x 2½ x $\frac{15}{16}$ inch Reversible, Six in a box with screws.

Per Each **$1.20**



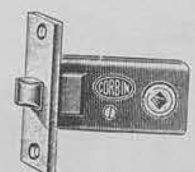
0
01

Mortise Knob Latches

0	Lacquered front.	Per Doz. **$4.80**
R01	Old Copper finish.	Per Doz. **5.76**
EA01	Dull Brass finish.	Per Doz. **5.76**

Japanned Iron Case 1¼ x 3¼ x ½ inch, backset $2\frac{7}{16}$ inch, wrought steel front 2⅞ x ⅞ inch. Reversible.

Six in a box with screws.



45

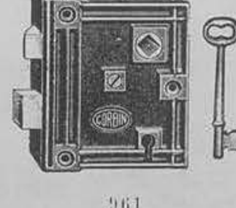
Mortise Knob Latch

EA45 Dull Brass finish. Per Doz. **$9.60**

Japanned Iron Case 1¾ x 3 x ½ inch, backset $2\frac{7}{16}$ inch, cast brass front 3 x $\frac{13}{16}$ inch, easy spring latch bolt, Reversible.

Six in a box with screws.

RIM KNOB LOCK



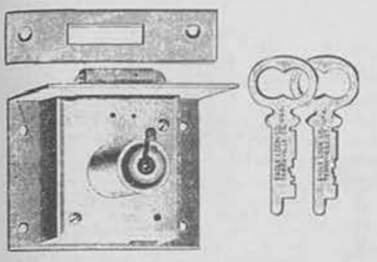
961

Rim Knob Locks

Japanned Iron Case, Reversible, with stop, one key.

	Size	Back-set	Key Changes	Per Doz.
961	4x3¼x⅝"	2⅜"	6	$5.28

DESK LOCKS

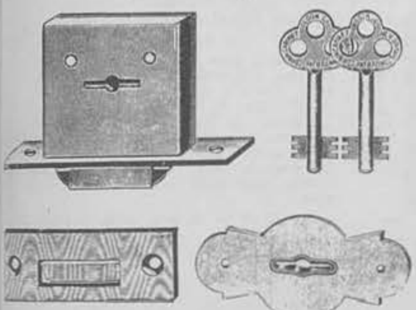


Brass

Solid square box. Screwed. Hook bolt. [illegible] levers. Square selvedge. 1 inch from selvedge to centre of cylinder. For ⅞ inch wood.

No. 0137—2¼ x 1⅞ in. case. Weight dozen 3½ lbs. Per doz. **$23.10**

One dozen in a box.



Brass

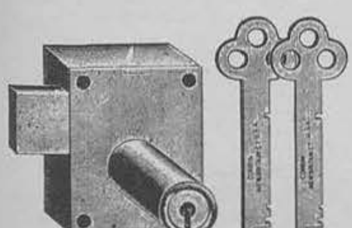
Plain buffed brass escutcheon. Patent self-closing strike. Solid square box. 4 levers. 1 inch from selvedge to centre of keyhole. For roll top desks.

Two nickeled flat bow steel keys to each lock, all different in a dozen.

No. 47¾C—3 x 1¾ in. case. Weight dozen 3⅝ lbs. Per doz. **$15.40**

One dozen in box with screws

CUPBOARD LOCKS



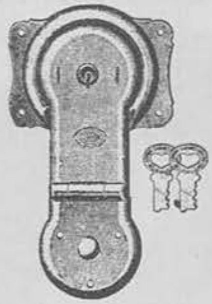
Corbin No. 755

Steel, With Heavy Brass Bolt

Square box, 5 secure levers. Bolt projects ¾ inch. For either right or left hand. 2 nickel plated flat steel keys to each lock. All different in a dozen. 16,800 changes possible or 2394 master-keyed. Key blank No. 4131A, Made regularly for ⅞ inch wood; also made for any thickness wood without extra charge.

No.	Size	Per doz.
755	2x½ inch	$22.55

TRUNK LOCKS



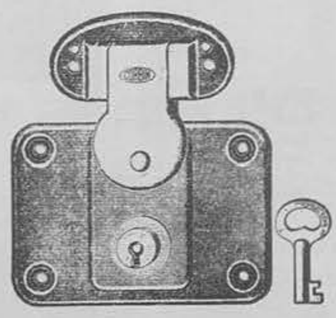
No. C-01262¾ — "Corbin"

Wrought Steel; brass plated; heavy guard cup; lock by bolt; size 6½x3¾ ins.; 2 nickel plated flat steel keys.

No. C-01262¾. Dozen list........ **$5.50**

1 dozen in a box.

SUIT CASE LOCKS



No. C-1642 — "Corbin"

Steel, brass plated plain finish; self-locking; spring stop hasp, may be used as catch when unlocked, unlatched by pressing button; secure lever; for surface use; 1 malleable iron key; size of plate 2⅞x2 ins.

No. C-1642. Dozen list.................. **$2.53**

1 dozen in a box.

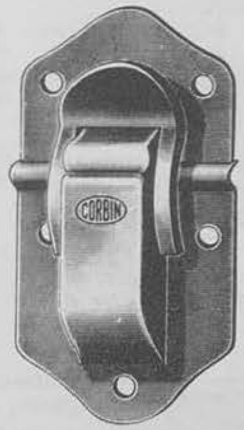
Automobile Tool Box Locks

Size 3¼x2¼ inches.
Brass plated steel, plain finish

No. 1835 .... Per doz. **$10.90**

One dozen in a box.

SUIT CASE CATCH



2½ inches.

No. C-1872⅛ Steel, brass-plated fine finish. Each **$1.10**

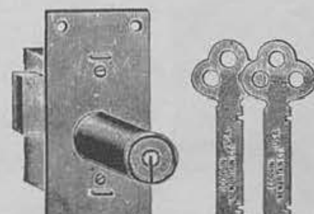
WARDROBE LOCKS

(Steel)

Solid square box. Bolt shoots right and left. Tumbler. Flat bow wrought steel key.

No.	Size	Per doz.
701B	2 x1 inch	$1.87
702B	2½x1¼ inch	1.98
704	3 x1¾ inch	2.20
709B	3½x2 inch	3.85

One dozen in a box.



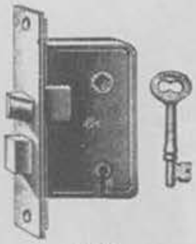
No. C749—Corbin (All Brass)

No.	Size Inch	Case	Per doz.
C749	1⅞x⅞	Steel	$7.66
C0749	1⅞x⅞	Brass	8.80
C750	2¾x1¼	Steel	8.80
C0750	2¾x1¼	Brass	9.90
C751	3x1¾	Steel	17.60
C0751	3x1¾	Brass	18.70

Regularly for ⅞ inch wood, other thicknesses upon application.

One dozen in a box.

CORBIN MORTISE INSIDE AND FRONT DOOR KNOB LOCKS AND DEAD LOCKS



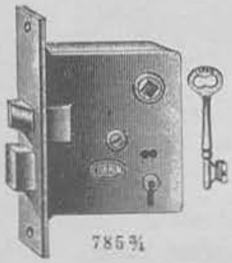
0283

Narrow Stile Mortise Knob Lock Bit Key

EA0283 Dull Brass finish. Per Doz. $20.16

Japanned Iron Case $3\frac{5}{8}$ x $2\frac{5}{16}$ x $\frac{9}{16}$ inch, backset $1\frac{1}{2}$ inch, spacing $2\frac{3}{16}$ inch, wrought steel front $5\frac{1}{4}$ x $\frac{7}{8}$ inch, french spring hub, easy spring latch bolt, one tumbler, 12 key changes, one key, Reversible.

Six in a box with screws.



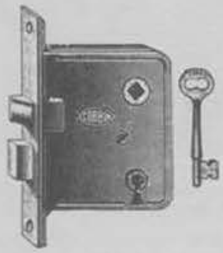
785¾

Mortise Knob Lock—Bit Key

EA785¾ Dull Brass finish Per Doz. $24.00

Japanned Iron Case $3\frac{5}{8}$ x $3\frac{1}{4}$ x $\frac{9}{16}$ inch, backset $2\frac{9}{16}$ inch, spacing $2\frac{3}{16}$ inch, cast brass front $5\frac{1}{2}$ x $\frac{13}{16}$ inch, easy spring latch bolt, three tumblers, 36 key changes, one key, Reversible.

Six in a box with screws.



0286
284

Mortise Knob Locks—Bit Key Wrought Steel Front

R0286 Old Copper finish. Per Doz. $6.60

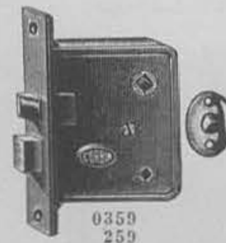
EA0286 Dull Brass finish. Per Doz. $6.60

0285 As above with plated bolts ....Per Doz. $6.96

Cast Brass Front
EA284 Dull Brass finish. Per Doz. $13.20

Japanned Iron Case $3\frac{5}{8}$ x $3\frac{1}{8}$ x $\frac{1}{2}$ inch, backset $2\frac{3}{8}$ inch, spacing $2\frac{3}{16}$ inch, front $5\frac{1}{4}$ x $\frac{7}{8}$ inch, one tumbler, 12 key changes, one key, Reversible.

Six in a box with screws.



0359
259

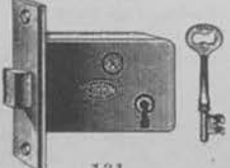
Mortise Bathroom Locks

Wrought Steel Front
E0359 Bright Nickel finish Per Doz. $18.36

Cast Brass Front
E259 Bright Nickel finish Per Doz. $26.20

Japanned Iron Case $3\frac{5}{8}$ x $3\frac{1}{4}$ x $\frac{9}{16}$ inch, backset $2\frac{3}{8}$ inch, spacing $2\frac{3}{16}$ inch, front $5\frac{1}{4}$ x $\frac{7}{8}$ inch, Reversible. Operation:—Latch bolt by knob from either side, Dead Bolt by thumb turn from inside.

Six in a box complete with thumb turns and screws.



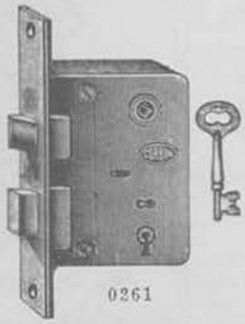
131

Mortise Dead Lock—Bit Key

EA131 Dull Brass finish. Per Doz. $25.92

Japanned Iron Case $2\frac{1}{8}$ x $3\frac{1}{4}$ x $\frac{9}{16}$ inch, backset $2\frac{3}{16}$ inch, cast brass front 4 x $\frac{13}{16}$ inch, one tumbler, 200 key changes, one key, Reversible.

Six in a box with screws.



0261

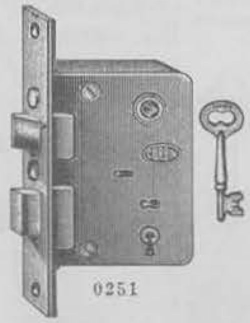
Mortise Front Door Locks—Bit Key

Without Night Works
R0261 Old Copper finish Per Doz. $21.60

EA0261 Dull Brass finish Per Doz. $21.60

Japanned Iron Case $4\frac{5}{8}$ x $3\frac{1}{2}$ x $\frac{11}{16}$ inch, backset $2\frac{1}{2}$ inch, spacing 3 inch, wrought steel front 7 x 1 inch, easy spring latch bolt, hub $\frac{5}{16}$ inch straight, two tumblers, 48 key changes, two keys, Reversible. Operation:—Latch bolt by knob from either side, Dead bolt by key from either side.

One in a box with screws.



0251

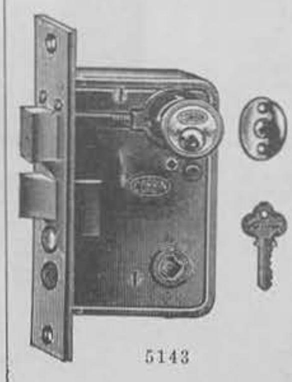
Mortise Front Door Locks—Bit Key

With Night Works
R0251 Old Copper finish Per Doz. $28.80

EA0251 Dull Brass finish Per Doz. $28.80

Japanned Iron Case $4\frac{5}{8}$ x $3\frac{1}{2}$ x $\frac{11}{16}$ inch, backset $2\frac{1}{2}$ inch, spacing 3 inch, wrought steel front 7 x 1 inch, easy spring latch bolt, hub $\frac{3}{8}$ x $\frac{5}{16}$ inch swivel, two tumblers, 48 key changes, two keys, Reversible. Operation:—Latch bolt by knob from either side. Outside knob is locked by stop in face. Dead bolt by key from inside, and both bolts by key from outside

One in a box with screws.



5143

Mortise Front Door Lock—Cylinder With Night Works

EA5143 Dull Brass finish Each $12.92

Japanned Iron Case $5\frac{1}{2}$ x $3\frac{1}{2}$ x $\frac{3}{4}$ inch, backset $2\frac{1}{2}$ inch, spacing, knob to thumb turn $2\frac{7}{16}$ inch, knob to cylinder $3\frac{5}{8}$ inch, cast brass front 8 x $1\frac{1}{8}$ inch, easy spring latch bolt, bronze hub $\frac{3}{8}$ x $\frac{7}{16}$ inch swivel, one ball bearing cylinder, three nickel silver keys, key changes unlimited. Reversible. Operation:—Latch bolt by knob from either side and by key from outside at all times. Dead bolt by key from the outside and thumb turn from the inside. Outside knob is locked by stop in face.

One in a box complete with thumb turn and screws.

5131

Mortise Vestibule and Office Door Lock—Cylinder With Night Works

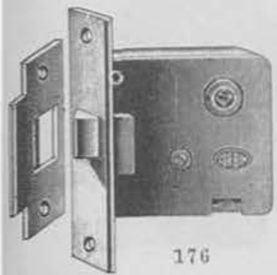
EA5131 Dull Brass finish Each $11.40

Japanned Iron Case $5\frac{1}{2}$ x $3\frac{1}{2}$ x $\frac{3}{4}$ inch, backset $2\frac{1}{2}$ inch, spacing $3\frac{5}{8}$ inch, cast brass front 8 x $1\frac{1}{8}$ inch, easy spring latch bolt, bronze hub $\frac{3}{8}$ x $\frac{7}{16}$ inch swivel, one ball bearing cylinder, three nickel silver keys, key changes unlimited. Reversible. Operation:—By knob from either side and by key from outside at all times. Outside knob is locked by stop in face.

One in a box with screws.

All cylinder locks on this page can be furnished keyed alike, master or grand master keyed when so ordered.

CORBIN FRONT AND STORE DOOR LATCHES AND LOCKS



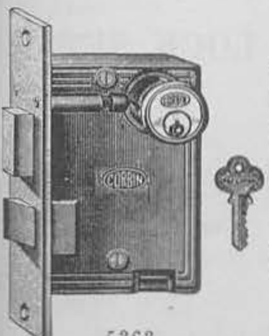
176

Mortise Store Door Latch

EA176 Dull Brass finish Each **$4.80**

Japanned Iron Case $3\frac{1}{4}$ x $3\frac{1}{2}$ x $\frac{1}{2}$ inch, backset $2\frac{7}{16}$ inch, spacing $2\frac{1}{2}$ inch, cast brass front $5\frac{1}{8}$ x $1\frac{1}{16}$ inch, easy spring latch bolt, bronze hub $\frac{5}{8}$ inch, Reversible. Operation:—By knob from one side and by thumb piece from the other side.

One in a box with screws.



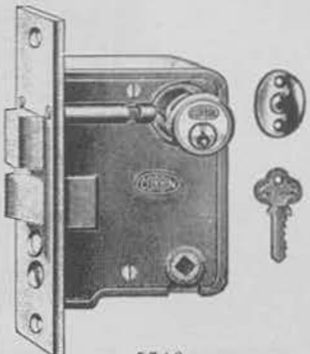
5262

Mortise Store Door Lock—Cylinder

EA5262 Dull Brass finish........Each **$12.60**

Japanned Iron Case 5 x $3\frac{3}{4}$ x $\frac{3}{4}$ inch, backset $2\frac{3}{4}$ inch, spacing $4\frac{1}{4}$ inch, cast brass front 8 x $1\frac{1}{4}$ inch, easy spring latch bolt, two ball bearing cylinders, three nickel silver keys, key changes unlimited. Reversible Operation:—Latch bolt by thumb piece from either side. Dead bolt by key from either side.

One in a box with screws.



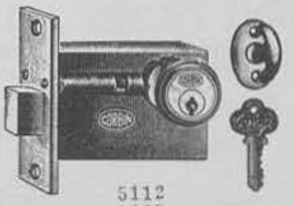
5743

Mortise Sectional Front Door Lock—Cylinder With Night Works

EA5743 Dull Brass finish Each **$12.92**

Japanned Iron Case $5\frac{1}{4}$ x $3\frac{3}{4}$ x $\frac{3}{4}$ inch, backset $2\frac{3}{4}$ inch, spacing, thumb piece lever to cylinder $4\frac{1}{4}$ inch, knob to thumb turn $3\frac{3}{8}$ inch, cast brass front 8 x $1\frac{1}{4}$ inch, easy spring latch bolt, bronze hub $\frac{7}{8}$ inch, one ball bearing cylinder, three nickel silver keys, key changes unlimited. Reversible. Operation:—Latch bolt by thumb piece from outside and knob from inside. Both Bolts by key from outside at all times. Dead bolt by thumb turn from the inside. Thumb piece outside is locked by stop in face.

One in a box complete with thumb turn and screws.



5112
5113

Mortise Dead Locks—Cylinder

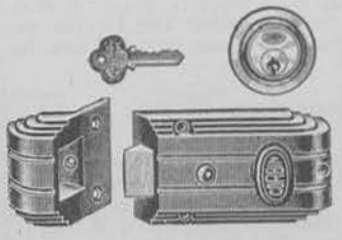
EA5112—two cylinders—Dull Brass finish Each **$7.40**

EA5113—one cylinder one turn—Dull Brass finish. Each **$5.00**

Japanned Iron Case $2\frac{1}{2}$ x $3\frac{3}{4}$ x $\frac{3}{4}$ inch, backset $2\frac{3}{4}$ inch, cast brass front $4\frac{1}{8}$ x $1\frac{1}{8}$ inch, ball bearing cylinders, three nickel silver keys, key changes unlimited. Reversible. Operation:—5112 by key from either side, 5113 by key from outside and thumb turn from the inside. These locks can be furnished keyed alike, master or grand master keyed when so ordered.

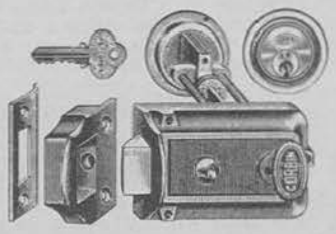
One in a box with screws.

RIM NIGHT LATCHES AND DEAD LOCKS



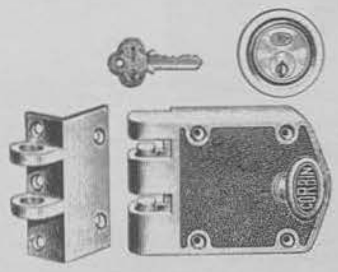
DW1356—Japanned wrinkle finish

Case: Iron, $2\frac{3}{8}$" x $3\frac{3}{4}$"
Keys: Three nickel silver
Cylinder: Five pin tumbler
Operation: Key from outside, knob inside.
Per dozen **$27.72**



DW3R6—Japanned wrinkle finish.
EAW3R6—Brass wrinkle finish.

Case: Iron $3\frac{5}{8}$" x $2\frac{5}{8}$".
Keys: Three nickel silver.
Cylinder: Five pin tumbler.
Operation: Key from outside, knob inside.
Per dozen **$17.60**



B1447—Bronze finish

Case: Die-cast, $2\frac{7}{8}$" x $4\frac{3}{8}$"
Keys: Three nickel silver
Cylinder: Five pin tumbler
Operation: Key from outside, knob inside.
Each **$5.50**

HBW474—Maroon wrinkle finish

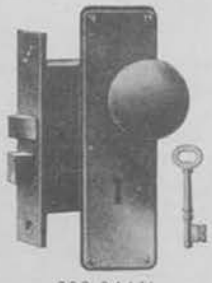
Case: Iron, $2\frac{1}{2}$" x $3\frac{5}{8}$"
Keys: Three nickel silver
Cylinder: Five pin tumbler
Operation: Key from outside, knob inside
Per dozen **$34.32**

DW353—Japanned wrinkle finish

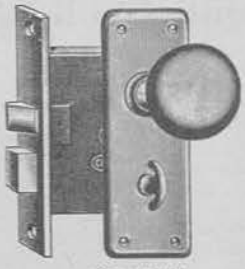
Case: Iron 2" x $3\frac{7}{8}$".
Keys: Two nickel plated.
Operation: Key from outside, knob inside
Per dozen **$12.10**

B2447—Bronze finish

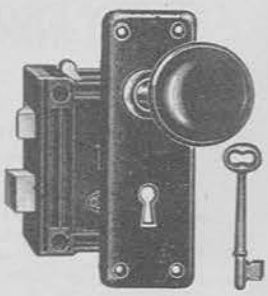
Case: Die-cast, $2\frac{7}{8}$" x $4\frac{3}{8}$"
Keys: Three nickel silver
Cylinders: Five pin tumbler
Operation: Key from either side.
Each **$7.90**



600-044½
Inside Set



600-074½
600-072
700-072
Bathroom Set



3367
Rim Lock Set

CORBIN INSIDE AND FRONT DOOR LOCK SETS

Canada and America Designs

INSIDE SETS
Wrought Steel

R600-044½ Old Copper Finish .....Per Doz. **$10.80**
EA600-044½ Dull Brass Finish .....Per Doz. **10.80**

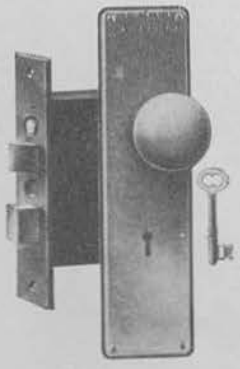
Complete Set consists of Lock 0286
One Pair Two Piece Simplex Shank 2¼ inch Door.
Knobs 01623½ and Two Escutcheons as illustrated 6 x 2 inch.

BATHROOM SETS
Wrought Steel

R600-074½ Old Copper x Bright Nickel Finish.....Per Doz. **$26.40**
EA600-074½ Dull Brass x Bright Nickel Finish.....Per Doz. **26.40**

Complete Set consists of Lock 0359
One Pair Two piece Simplex Shank 2¼ inch Door.
Knobs 01623½ and Two Escutcheons as illustrated 6 x 2 inch. The inside Escutcheon is fitted with a Thumb Turn to operate the Dead Bolt of the Lock.

The above Bathroom Sets are furnished with the Lock Front, Inside Escutcheon complete with Thumb Turn, and Inside Door Knob in Bright Nickel Finish with the Outside Escutcheon and Door Knob in either Old Copper or Dull Brass Finish as specified on your order. These Sets can be furnished in any other finish desired to special order.



601-806
Front Door Set

BATHROOM SETS, HALF TRIM ONLY

E600-072 Bright Nickel Finish Wrought Steel.....Per Doz. **$21.00**
E700-072 Bright Nickel Finish Wrought Brass .....Per Doz. **31.20**

Complete Set consists of Lock 0359, One only one piece Simplex Shank 2¼ inch Door Knob 01419½ or 1419½, One only Escutcheon Wrought Steel or Wrought Brass as illustrated 6 x 2 inch. The Inside Escutcheon is fitted with Thumb Turn to operate the Dead Bolt of the Lock.

Bathroom Sets E600-072 and E700-072 consist of Lock, Inside Escutcheon complete with Thumb Turn and Inside Knob in Bright Nickel Finish, and to complete the Bathroom Set it will be necessary to add the Outside Knob and Escutcheon desired.

RIM LOCK SETS
Wrought Steel

R3367 Old Copper Finish .....Per Doz. **$10.80**
EA3367 Dull Brass Finish .....Per Doz. **10.80**

Complete Set consists of Lock 961,
One Pair two piece Simplex Shank 2¼ inch Door Knobs 01623½ and One Escutcheon as illustrated 6 x 2 inch.

FRONT DOOR SETS
Wrought Steel

With Stop Buttons in Face of Lock, for locking outside Knob.

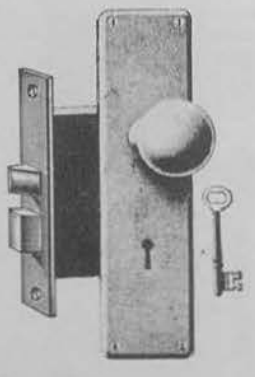
R601-806 Old Copper Finish .....Per Set **$3.60**
EA601-806 Dull Brass Finish .....Per Set **$3.60**

Complete Set consists of Lock 0251,
One Pair One Piece Simplex Shank 2¼ inch Door Knobs 01419½, One Outside Escutcheon 10 x 2¾ inch, One Inside Escutcheon 7 x 2¼ inch, as illustrated.

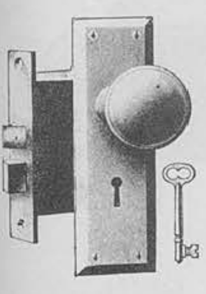
Without Stop Buttons in Face of Lock.

R601-810 Old Copper Finish .....Per Set **$3.00**
EA601-810 Dull Brass Finish .....Per Set **$3.00**

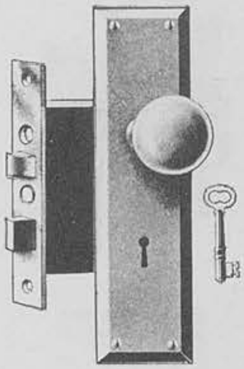
Complete Set consists of Lock 0261,
One Pair One Piece Simplex Shank 2¼ inch Door Knobs 01419½, One Outside Escutcheon 10 x 2¾ inch, One Inside Escutcheon 7 x 2¼ inch, as illustrated.



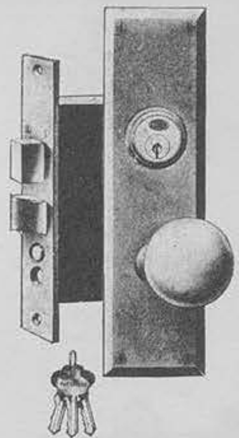
601-810
Front Door Set



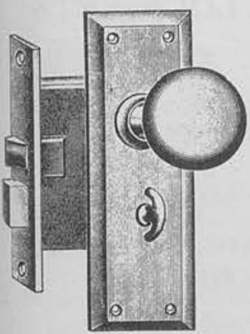
602-048
702-048
Inside Set



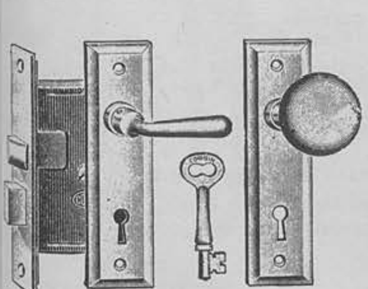
602B-806
Front Door Set



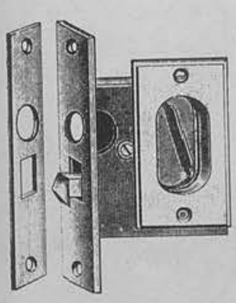
702-842
Cylinder Front Door Set



602-074
Bathroom Set



602-057
French Window Lock Set



091
0291
Sliding Door Latch Set

CORBIN INSIDE, FRONT DOOR AND SLIDING DOOR SETS

Portland Design

INSIDE SETS
Wrought Steel

R602-048 Old Copper Finish ....Per Doz. Sets **$15.00**
EA602-048 Dull Brass Finish ....Per Doz. Sets 15.00
Complete Set consists of Lock 0285, One Pair One Piece Simplex Shank 2¼ inch Door Knobs 01419½ and Two Escutcheons as illustrated 7 x 2¼ inch.

Wrought Brass Trim with Steel Plated Face Lock

R702-048 Old Copper Finish ....Per Doz. Sets **$28.56**
EA702-048 Dull Brass Finish ....Per Doz. Sets 28.56
Complete Set consists of Lock 0285, One Pair One Piece Simplex Shank 2¼ inch Wrought Brass Door Knobs 1419½, and Two Wrought Brass Escutcheons as illustrated 7 x 2¼ inch.

BATHROOM SETS
Wrought Steel

R602-074 Old Copper x Bright Nickel Finish............Per Doz. Sets **$29.40**
EA602-074 Dull Brass x Bright Nickel Finish............Per Doz. Sets 29.40
Complete Set consists of Lock 0359 One Pair One Piece Simplex Shank 2¼ inch Door Knobs 01419½, and Two Escutcheons as illustrated 7 x 2¼ inch, The Inside Escutcheon is fitted with a Thumb Turn to operate the Dead Bolt of the Lock.
Bathroom Sets are regularly furnished with the Lock Front, Inside Escutcheon complete with Thumb Turn, and Inside Door Knob in Bright Nickel Finish with the Outside Escutcheon and Door Knob in either Old Copper or Dull Brass Finish as specified on your order. These Sets can be furnished in any other finish desired to special order.

FRENCH WINDOW LOCK SETS
Wrought Steel

R602-057 Old Copper Finish ....Per Doz. Sets **$26.40**
EA602-057 Dull Brass Finish ....Per Doz. Sets 26.40
Complete Set consists of Lock 0283 One only One Piece 2 inch Door Knob, One only 2¼ inch Lever Handle and Two Escutcheons as illustrated 5¼ x 1⅜ inch.

FRONT DOOR SETS

Wrought Bronze Outside Knob and Escutcheon, Wrought Steel Inside Knob and Escutcheon With Stop Buttons in Face of Locks, for Locking Outside Knob.

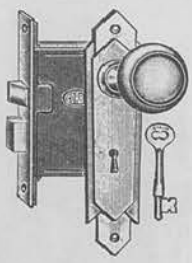
R602B-806 Old Copper Finish ....Per Set **$4.50**
EA602B-806 Dull Brass Finish ....Per Set **$4.50**
Complete Set consists of Lock 0251 One only, One Piece Simplex Shank 2¼ inch Door Knob 1419½, One only One Piece Simplex Shank 2¼ inch Door Knob 01419½. One outside Escutcheon 10 x 2¾ inch, One Inside Escutcheon 7 x 2¼ inch as illustrated.

CYLINDER FRONT DOOR SETS
Wrought Brass and Bronze

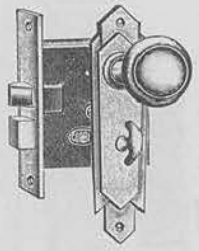
R702-842 Old Copper Finish ....Per Set **$13.80**
EA702-842 Dull Brass Finish ....Per Set 13.20
B702-842 Polished Bronze Finish ....Per Set 13.20
Complete Set consists of Cylinder Lock 5143 One Pair One Piece Simplex Shank 2¼ inch Door Knobs 1419½, One Outside Escutcheon 10 x 2¾ inch, One Inside Escutcheon 7 x 2¼ inch complete with Thumb Turn, as illustrated. These sets can be furnished Keyed Alike, Master or Grand Master Keyed when so ordered.

SLIDING DOOR LATCH SETS
Wrought Steel .

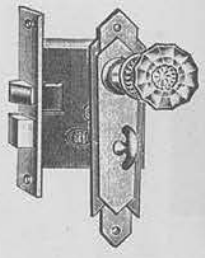
For Single Doors.
R091 Old Copper Finish ....Per Set **$3.36**
EA091 Dull Brass Finish ....Per Set **$3.36**
For Double Doors.
R0291 Old Copper Finish ....Per Set **$3.94**
EA0291 Dull Brass Finish ....Per Set **$3.94**
Complete Sliding Door Latch Set 091 consists of Latch, Strike and Two only Cup Escutcheons.
Complete Sliding Door Latch Set 0291 consists of Latch, Strike and Four only Cup Escutcheons.



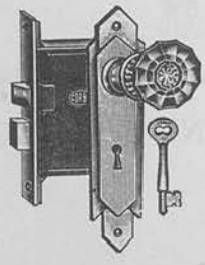
320-048
Inside Set



320-074
Bathroom Set



428-074
Bathroom Set



428-048
Inside Set

CORBIN INSIDE AND FRONT DOOR LOCK SETS

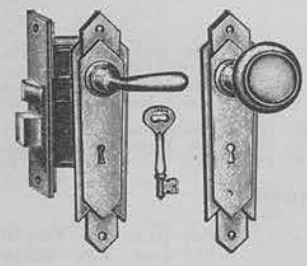
Miami Design

KHB Finish Symbol Prefix denotes Dull Bronze Oxidized and Relieved Finish. Other finishes will be furnished to special order.

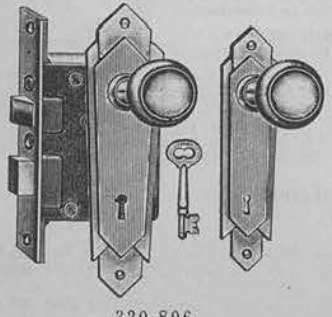
KHB320-048	Wrought Steel Knobs and Escutcheons, Lock No. 0285, Per Doz. Sets	**$15.60**
KHB428-048	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0285. Per Doz. Sets	**$22.80**
KHB320-074	Wrought Steel Knobs and Escutcheons, Lock No. 0359, Per Doz. Sets	**$31.20**
KHB428-074	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0359. Per Doz. Sets	**$38.76**
KHB320-057	Wrought Steel Knobs and Escutcheons, Lock No. 0283, Per Doz. Sets	**$28.80**
KHB320-806	Wrought Steel Knobs and Escutcheons, Lock No. 0251, Per Set	**$4.40**
KHB320B-806	Wrought Bronze Knob and Escutcheon outside, Wrought Steel Knob and Escutcheon Inside, Lock 0251. Per Set	**$5.30**
KHB428B-806	Wrought Bronze Knob and Escutcheon outside Glass Knob and Steel Escutcheon inside. Lock No. 0251. Per Set	**$5.62**
KHB520-842	Wrought Bronze Knobs and Escutcheons, Lock No. 5143, Per Set	**$15.00**

This Set can be furnished Keyed alike, Master or Grand Master Keyed when so ordered.

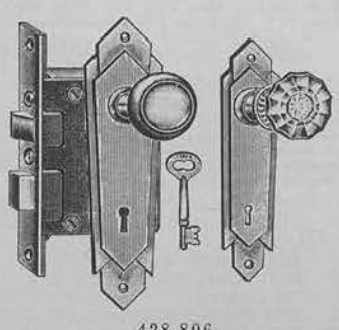
BATHROOM SETS furnished regularly with lock and inside trim bright nickel. French Window Sets and Front Door Sets with glass knobs to special order only.



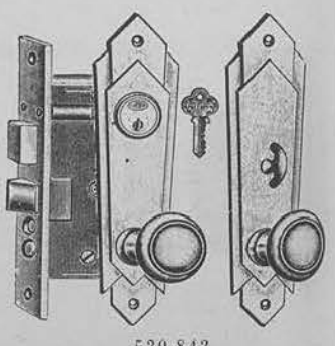
320-057
French Window Set



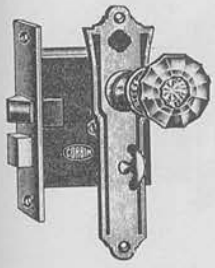
320-806
320B-806
Front Door Set



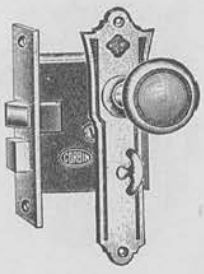
428-806
428B-806
Front Door Sets



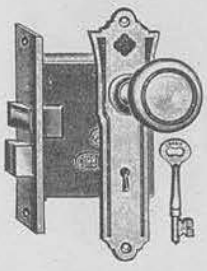
520-842
Front Door Cylinder Set



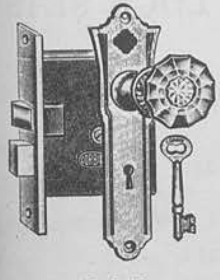
418-074
Bathroom Set



311-074
Bathroom Set



311-048
Inside Set



418-048
Inside Set

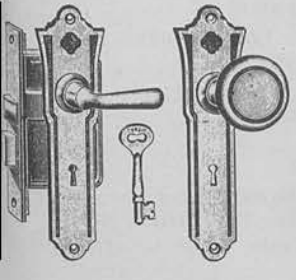
CORBIN INSIDE AND FRONT DOOR LOCK SETS

San Jose Design

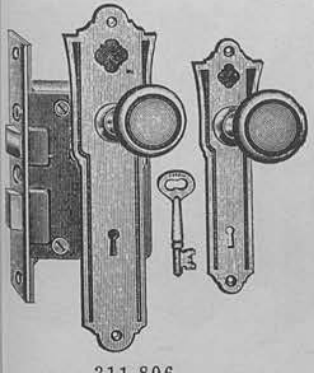
KA Finish Symbol Prefix denotes Dull Brass Oxidized and Relieved Finish. Other finishes will be furnished to special order.

KA311-048	Wrought Steel Knobs and Escutcheons, Lock No. 0285, Per Doz. Sets	**$15.60**
KA418-048	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0285. Per Doz. Sets	**$22.80**
KA311-074	Wrought Steel Knobs and Escutcheons, Lock No. 0359, Per Doz. Sets	**$31.20**
KA418-074	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0359. Per Doz. Sets	**$38.76**
KA311-057	Wrought Steel Knobs and Escutcheons, Lock No. 0283, Per Doz. Sets	**$28.80**
KA311-806	Wrought Steel Knobs and Escutcheons, Lock No. 0251, Per Set	**$4.40**
KA311B-806	Wrought Bronze Knob and Escutcheon outside Wrought Steel Knob and Escutcheon Inside, Lock No. 0251. Per Set	**$5.30**
KA418B-806	Wrought Bronze Knob and Escutcheon outside, Glass Knob and Steel Escutcheon Inside, Lock No. 0251. Per Set..	**$5.62**
KA511-842	Wrought Bronze Knobs and Escutcheons, Lock No. 5143. Per Set	**$15.00**

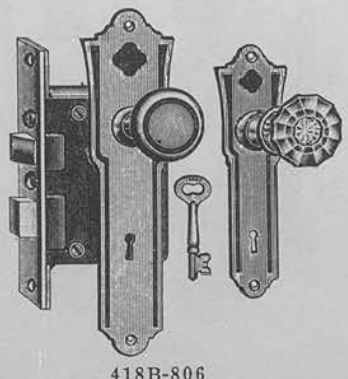
This Set can be furnished Keyed Alike, Master or Grand Master Keyed when so ordered.
Bathroom Sets furnished regularly with Lock and Inside Trim Bright Nickel.
French Window Sets and Front Door Sets with Glass Knobs to special order only.



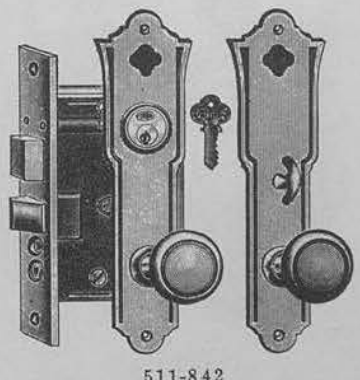
311-057
French Window Set



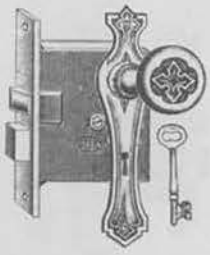
311-806
311B-806
Front Door Set



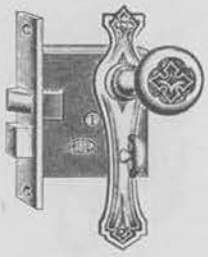
418B-806
Front Door Set



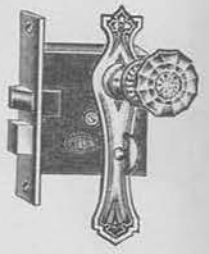
511-842
Front Door Cylinder Set



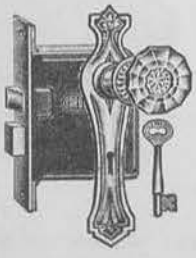
318-048
Inside Set



318-074
Bathroom Set



448-074
Bathroom Set



448-048
Inside Set

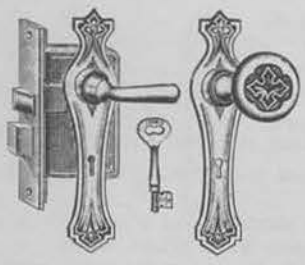
CORBIN INSIDE AND FRONT DOOR LOCK SETS

St. Johns Design

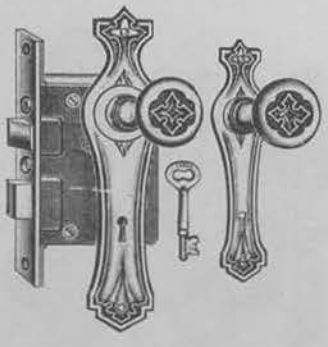
KE Finish Symbol Prefix denotes Dull Nickel Oxidized and Relieved Finish. Other finishes will be furnished to special order.

KE318-048	Wrought Steel Knobs and Escutcheons, Lock No. 0285,	Per Doz. Sets **$17.16**
KE448-048	Pressed Glass Knob, Steel Escutcheon, Lock No. 0285.	Per Doz. Sets **$25.08**
KE318-074	Wrought Steel Knobs and Escutcheons, Lock No. 0359,	Per Doz. Sets **$31.20**
KE448-074	Pressed Glass Knob, Steel Escutcheon, Lock No. 0359.	Per Doz. Sets **$38.76**
KE318-057	Wrought Steel Knobs and Escutcheons, Lock No. 0283,	Per Doz. Sets **$31.20**
KE318-806	Wrought Steel Knobs and Escutcheons, Lock No. 0251,	Per Set **$4.84**
KE318B-806	Wrought Bronze Knob and Escutcheon Cutside, Wrought Steel Knob and Escutcheon Inside, Lock No. 0251.	Per Set **$6.18**
KE448B-806	Wrought Bronze Knob and Escutcheon Outside, Glass Knob and Steel Escutcheon Inside, Lock No. 0251.	Per Set **$6.53**
KE518-842	Wrought Bronze Knobs and Escutcheons, Lock No. 5143	Per Set **$15.70**

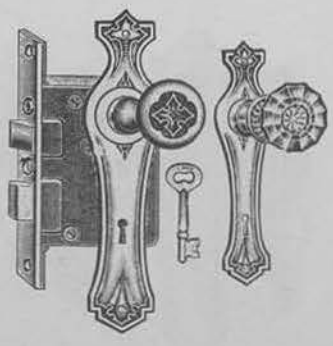
This Set can be furnished Keyed alike, Master or Grand Master Keyed when so ordered. Bathroom Sets furnished regularly with Lock and Inside Trim Bright Nickel. French Window Sets and Front Door Sets With Glass Knobs to special order only.



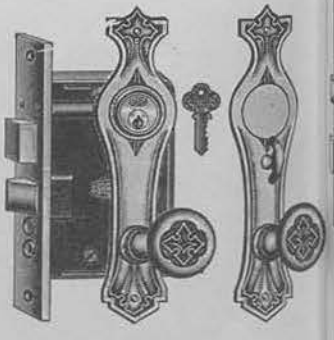
318-057
French Window Set



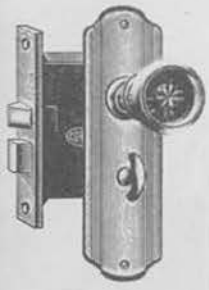
318-806
318B-806
Front Door Set



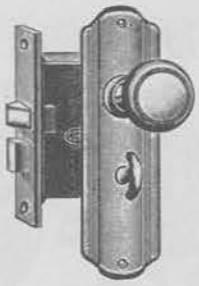
448B-806
Front Door Set



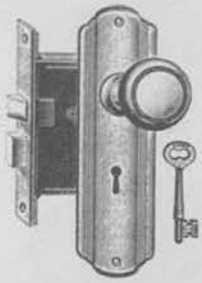
518-842
Front Door Cylinder Set



482-074
Bathroom Set



328-074
Bathroom Set



328-048
Inside Set

CORBIN INSIDE AND FRONT DOOR LOCK SETS

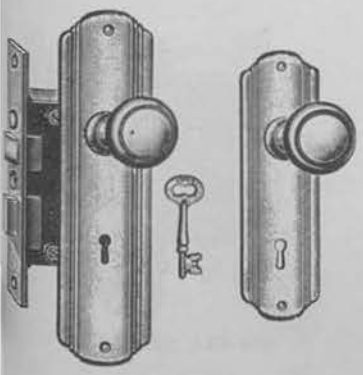
Hull Design

482-048
Inside Set

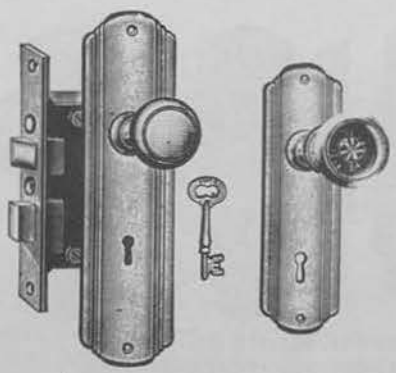
KHB Finish Symbol Prefix denotes Dull Bronze Oxidized and Relieved Finish. Other finishes will be furnished to special order.

KHB328-048	Wrought Steel Knobs and Escutcheons, Lock No. 0285, Sets	Per Doz. **$17.16**
KHB482-048	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0285. Per Doz Sets..	**$24.88**
KHB328-074	Wrought Steel Knobs and Escutcheons, Lock No. 0359, Sets	Per Doz. **$31.20**
KHB482-074	Pressed Glass Knobs, Steel Escutcheons, Lock No. 0359. Per Doz. Sets..	**$42.27**
KHB328-806	Wrought Steel Knobs and Escutcheons, Lock No. 0251,	Per Set **$4.84**
KHB482B-806	Wrought Bronze Knob and Escutcheon Outside, Glass Knob and Steel Escutcheon Inside, Lock No. 0251. Per Set.	**$6.08**
KHB328B-806	Wrought Bronze Knob and Escutcheon Outside, Wrought Steel Knob and Escutcheon Inside, Lock No. 0251. Per Set.	**$5.83**
KHB528-842	Wrought Bronze Knobs and Escutcheons, Lock No. 5143,	Per Set **$15.00**

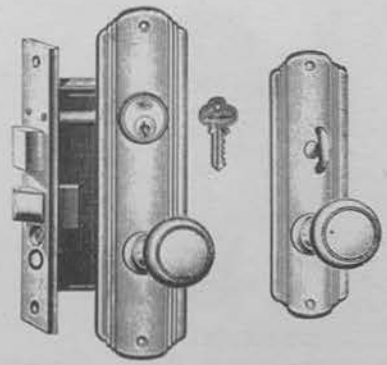
This Set can be furnished Keyed alike, Master or Grand Master Keyed when so ordered.
Front Door Sets with Glass Knobs to special order only.
Bathroom Sets furnished regularly with Lock and Inside Trim Bright Nickel.



328-806
328B-806
Front Door Sets



482-806
482B-806
Front Door Sets

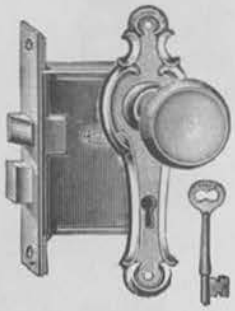


528-842
Front Door Cylinder Set

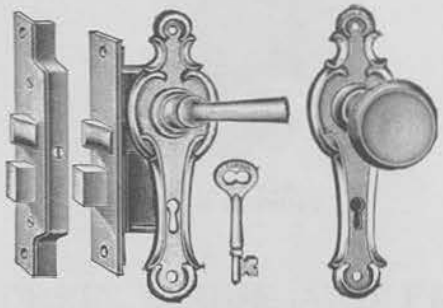
CORBIN LOCK SETS

Design—Cleo

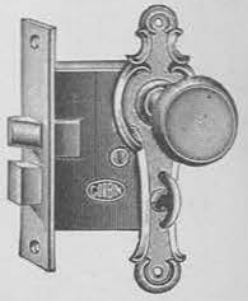
WROUGHT STEEL AND WROUGHT BRONZE



321-048, 521-132



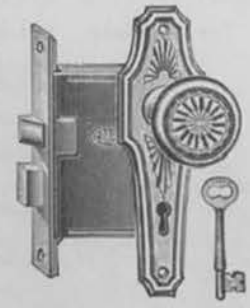
321-057, 521-112 (Flat Front)
321-059, 521-114 (Rabbeted Front)



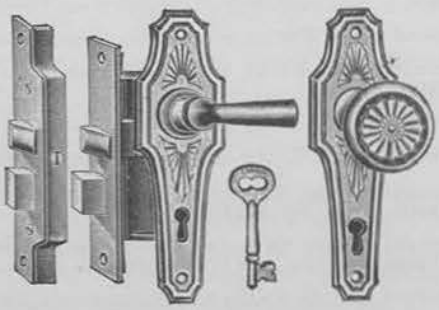
321-074, 520-438

Design—Juno

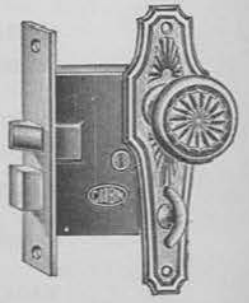
WROUGHT STEEL AND WROUGHT BRONZE



322-048, 522-132



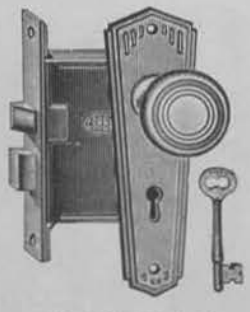
322-057, 522-112 (Flat Front)
322-059, 522-114 (Rabbeted Front)



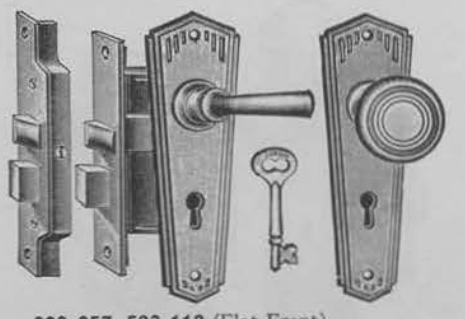
322-074, 522-438

Design—Nile

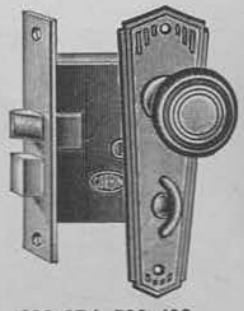
WROUGHT STEEL AND WROUGHT BRONZE



323-048, 523-132



323-057, 523-112 (Flat Front)
323-059, 523-114 (Rabbeted Front)



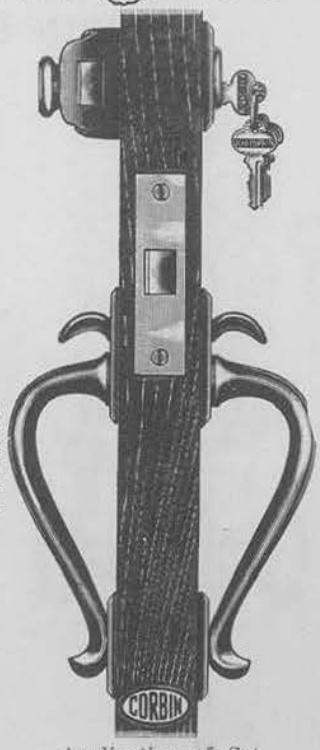
323-074, 523-438

We show above three additional designs of Corbin inside and front door lock sets that are carried in stock. Prices are approximately the same as those for the designs previously shown.

CORBIN STORE DOOR LOCK SETS

Set 753-176 x 3R6 consists of One Handle 75383, One Store Door Latch 176, One 2¼ inch Wrought Brass Plain Knob with Rose and One Cylinder Night Latch 3R6.

Handle 75383 Cast Brass 8¾ x 2¼ inch with Cylinder Collar 2¼ x 2¼ inch



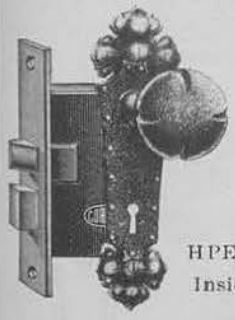
Set 753-177 x 3R6 consists of Two Handles 75383, One Store Door Latch 177 and One Cylinder Night Latch 3R6.

Application of Set 753-176 x 3R6
EA753-176 x 3R6 Dull Brass Finish
Set **$9.62**
R753-176 x 3R6 Old Copper Finish
Set **$10.58**

Application of Set 753-177 x 3R6
EA753-177 x 3R6 Dull Brass Finish
Per Set **$13.35**
R753-177 x 3R6 Old Copper Finish
Per Set **$14.70**

ese Sets are particulary attractive as the Outside appearance is identical to a Cylinder Sectional Store Door Set. he Latch function and security is equal to that of a Mortise Cylinder Store Door Lock.

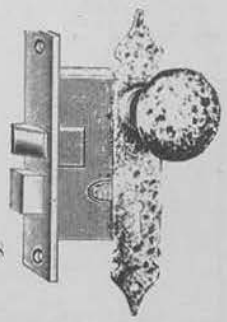
CORBIN INSIDE LOCK SETS



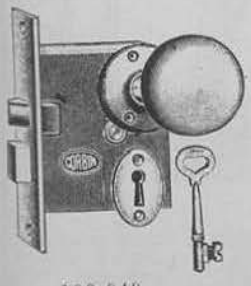
HPE654-049
Inside Set

HPE654-049 Cast Iron Knob and Escutcheon, Lock No. 0285, ..Per Doz. Set **$19.20**

HPE655-048 Cast Iron Knob and Escutcheon, Lock No. 0285, ..Per Doz. Set **$19.20**

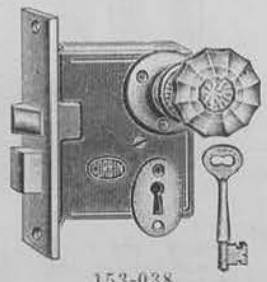


HPE655-048
Inside Set



100-048
Inside Set

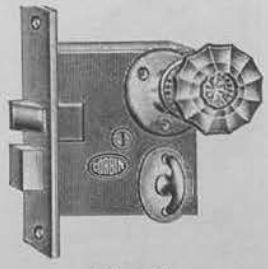
A100-048 Dull Brass Finish
Doz. Sets **$22.80**
100-048 Dull Bronze Finish
Doz. Sets **$22.80**
100-048 Polished Bronze Finish
Doz. Sets **$22.80**



153-038
Inside Set

Wrought Brass or Bronze Inside Sets with Steel Plated Face Lock 0285,

A153-038 Polished Brass Finish
Per Doz. Sets **$22.80**

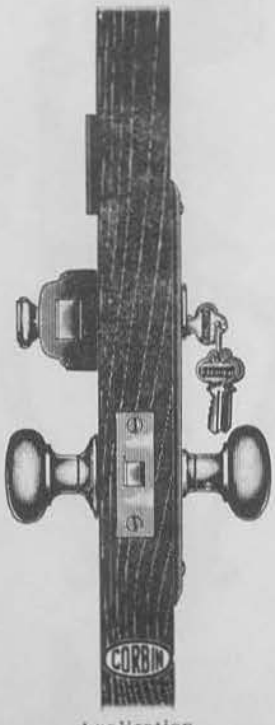


453-072
Half Trim Only
Bathroom Set

E453-072 Bright Nickel Finish
Per Doz. Sets **$24.96**

This Set consists of Lock, Lock No. 0285 page 16, One Pressed Glass Knob and Rose and One Thumb Turn in Bright Nickel Finish, to complete the Set add Outside Trim.

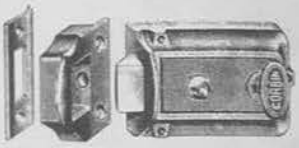
CORBIN COMBINATION RIM AND MORTISE LOCK SETS



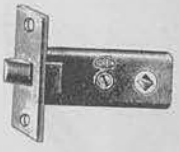
Application

These Sets consist of One Escutcheon, One Pair of Knobs and Rose, One Cylinder Night Latch 3R6 and One Mortise Latch 01, and can be furnished in any of the designs as illustrated below. They present a very attractive appearance when installed, and the Cylinder Night Latch furnishes practically the same security as the Mortise Cylinder Lock.

These Sets can be furnished keyed alike, Master or Grand Master Keyed when so ordered.

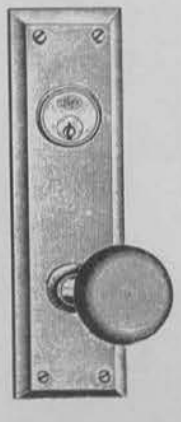


Night Latch 3R6. Reversible. Cast Iron Case 2⅝ x 3⅜ inch. Backset 2⅞ inch. Wrought Bronze Knob. Cast Iron Bronze Plated Bolt. Cast Bronze Cylinder with three Nickle Silver Keys. Furnished with Rim and Reverse Bevel Strikes. For Doors 1 to 2½ inch thick.



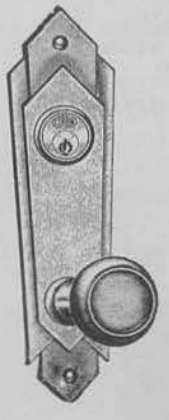
Mortise Latch 01.
Japanned Iron Case 1¼ x 3¼ x ½ inch. Backset 2⅞ inch. Wrought Steel Plated Front 2¾ x ⅞ inch. Cast Iron Plated Bolt.

Portland Design
Wrought Brass. Size 10 x 2¾ inch. Knob 2¼ inch Plain Wrought Brass.



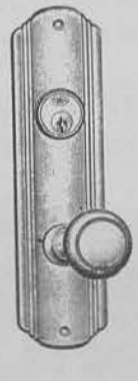
R702-3R6 Old Copper Finish Per. Set **$4.62**
EA702-3R6 Dull Brass Finish. Per Set **$4.30**
B702-3R6 Polished Bronze Finish. Per Set **$4.30**

Miami Design
Wrought Bronze. Size 8½ x 2⅞ inch. Knob 2 inch Ornamental Wrought Bronze.



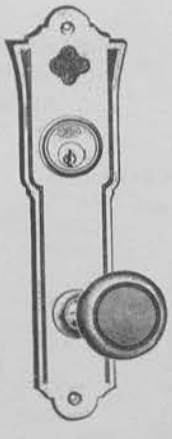
KHB528-3R6 Dull Bronze Oxidized and Relived Finish. Per Set **$4.80**

Hull Design
Wrought Bronze. Size 9½ x 2⅝ inch. Knob 2 inch Ornamental Wrought Bronze.



KHB528-3R6 Dull Bronze Oxidized and Relieved Finish. Per Set **$4.80**

San Jose Design
Wrought Brass. Size 9⅝ x 2⅝ inch. Knob 2 inch Ornamental Wrought Brass.



KA511-3R6 Dull Brass Oxidized and Relieved Finish. Per Set **$4.80**

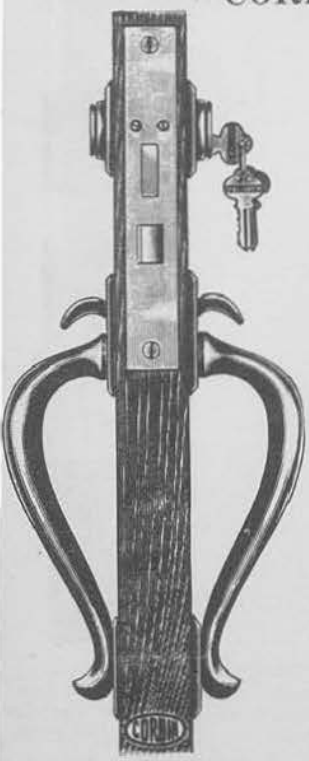
St. Johns Design
Wrought Brass. Size 9⅛ x 2⅝ inch. Knob 2 inch Ornamental Wrought Brass.

KE518-3R6 Dull Nickle Oxidized and Relieved Finish. Per Set **$5.3**

All of the above Sets are catalogued in finishes corresponding to their respective inside door Lock Sets but may be furnished in any desired finish to special order. These Sets can also be furnished with other catalogued Rim Night Latches or Dead Locks to Special order.

CORBIN CYLINDER STORE DOOR LOCK SETS

Sectional Type
Reversible, For Doors 1¾ to 2¼ inches thick



Application.

Lock 5262, Japanned Iron Case 5 x 3¾ x ¾ inch. Cast Bronze Front 8 x 1¼ inch. Backset 2¾ inch. Easy Spring Latch Bolt. Latch Bolt operated by Thumb Piece from either side, and Dead Bolt by Key from either side. Two Ball Bearing Cylinders. Three Nickel Silver Keys. Key Changes unlimited.

Complete Set consists of Two Handles and Lock 5262. Specify Thickness of Door

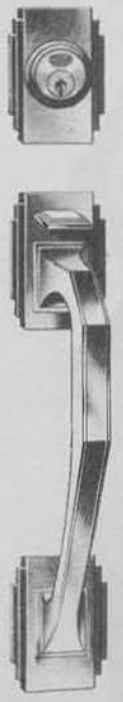
Cast Brass and Bronze.
Size 8¾ x 2¼ inch. Cylinder Collar 2¼ x 2¼ inch.

EA753-993 Dull Brass Finish. Per Set . . . **$18.16**

B753-993 Polished Bronze Finish. Per Set **$18.16**

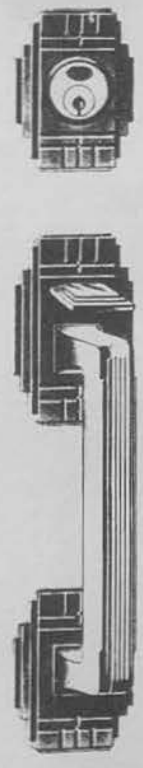
Cast Bronze.
Size 9¼ x 2⅝ inch. Cylinder Collar 2⅝ x 2⅝ inch.

BKB778-993 Polished Bronze Finish with Medium Statuary Back ground.
Per Set **$22.00**



Cast Bronze.
Size 10⅝ x 2¼ inch. Cylinder Collar 3 x 2¼ inch.

DE 745-994 Dull Nickel Finish.
Per Set **$27.50**



Cast Bronze.
Size 11½ x 2⅝ inch. Cylinder Collar 3⅜ x 2⅜ inch.

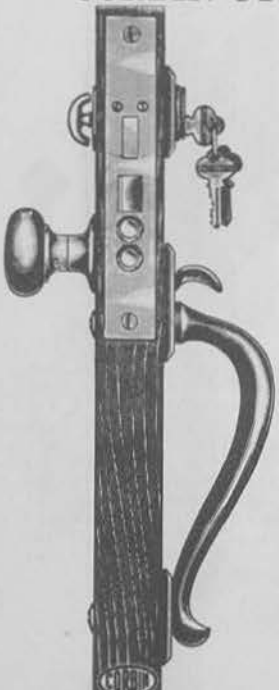
KE746-994 Dull Nickel Oxidized and Relieved Finish. Per Set . . . **$27.50**

One Set in a Box, with Screws.
These Sets can be furnished Keyed alike, Master or Grand Master Keyed when so ordered.

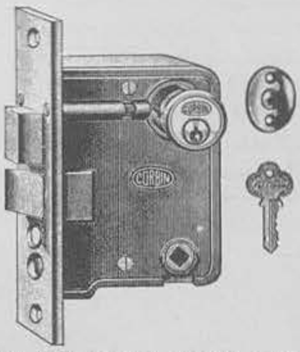
CORBIN CYLINDER RESIDENCE AND STORE DOOR LOCK SETS

Sectional Type
Reversible, for Doors 1¾ to 2¼ inch thick

Complete Set consists of One Handle, One 2¼" Wrought Bronze Plain Knob with Rose, Thumb Turn and Lock 5743. Specify Thickness of Door.



Application.



Lock 5743. Japanned Iron Case 5¼ x 3¾ x ¾ inch. Cast Bronze Front 8 x 1¼ inch. Backset 2¾ inch. Easy Spring Latch Bolt. Latch Bolt cperated by Thumb Piece from Outside and Knob from Inside. Both Bolts by Key from Outside at all times. Dead Bolt by Thumb Turn from the Inside. Thumb Piece Outside is Locked by Stop in Face. One Ball Bearing Cylinder. Three Nickle Silver Keys. Key Changes unlimited.

Cast Brass.
Size 8½ x 2½ inch. Cylinder Collar 2 inch diameter.

A752-879 Polished Brass Finish.
Per Set $13.76

Cast Brass and Bronze.
Size 8¾ x 2¼ inch. Cylinder Collar 2¼ x 2¼ inch.

EA753-879 Dull Brass Finish. Per Set $13.76

B753-879 Polished Bronze Finish. Per Set..... $13.76

Cast Bronze.
Size 9¼ x 2⅝ inch. Cylinder Collar 2⅝ x 2⅝ inch.

BxKB778-879 Polished Bronze Finish with Medium Statuary Background.
Per Set $16.50

Cast Bronze.
Size 10¼ x 2⅝ inch. Cylinder Collar 3⅝ x 2⅝ inch.

KE401-880 Dull Nickle Oxidized and Relieved Finish.
Per Set $15.40

Cast Bronze.
Size 11½ x 2⅝ inch. Cylinder Collar 3⅝ x 2⅝ inch.

KE746-880 Dull Nickle Oxidized and Relieved Finish.
Per Set $19.80

Cast Bronze.
Size 10⅝ x 2¼ inch. Cylinder Collar 3 x 2¼ inch.

DE745-879 Dull Nickel Finish. Per Set........ $22.00

Cast Nickeline.
Size 10 x 2¾ inch. Cylinder Collar 2½ x 2½ inch.

EH404-880 Forged Iron Finish. Per Set $15.40

One Set in a Box, with Screws.

These Sets can be furnished Keyed Alike, Master or Grand Marter Keyed when so ordered.

CORBIN CYLINDER STORE DOOR LOCK SETS

Plate Type
Reversible, For Doors 1¾ to 2¼ inches thick

Complete Set consists of Two Handles and Lock 5262 Specify Thickness of Door

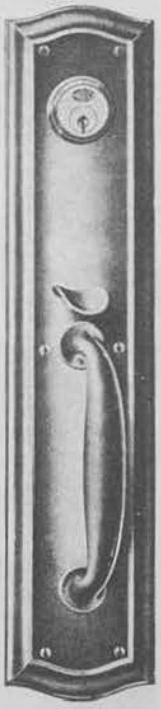
Wrought Brass and Bronze
Plate size 14½ x 3⅛ inch.

R702-991—Old Copper Finish.
Per Set **$15.74**

KA702-991—Dull Brass Finish.
Per Set **$14.30**

B702-991—Polished Bronze Finish.
Per Set **$14.30**

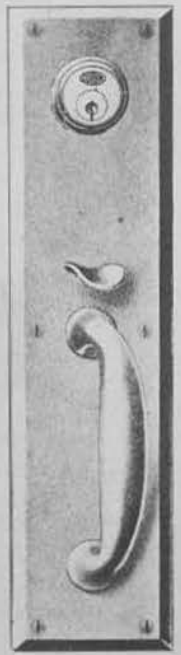
Lock 5262—Japanned Iron Case 5 x 3⅜ x ⅝ inch. Cast Bronze Front 8 x 1¼ inch. Backset 2¾ inch. Easy Spring Latch Bolt. Latch Bolt operated by Thumb Piece from either side, and Dead Bolt by Key from either side. Two Ball Bearing Cylinders. Three Nickel Silver Keys. Key changes unlimited.



Wrought Brass and Bronze.
Plate Size 15 x 3¼ inch.

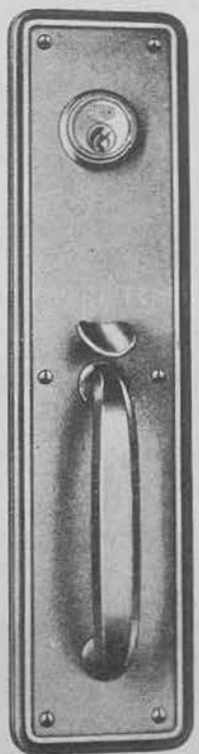
KA726-990—Dull Brass Oxidized and Relieved Finish. Per Set.... **$19.36**

KHB726-990—Dull Bronze Oxidized and Relieved Finish. Per Set **$19.36**



Cast Bronze.
Plate Size 14 x 3½ inch.

B742-990—Polished Bronze Finish.
Per Set **$28.60**



Cast Bronze.
Plate Size 16 x 4 inch.

DB788-990—Dull Bronze Finish.
Per Set **$36.30**

One Set in a Box, with Screws.

Cast Bronze.
Plate Size 16 x 3¼ inch.

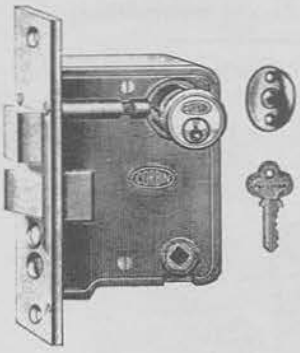
KE746-990—Dull Nickel Oxidized and Relieved Finish. Per Set ... **$36.30**

These Sets can be furnished Keyed Alike, Master or Grand Master Keyed when so ordered.

CORBIN HARDWARE FOR RESIDENCE ENTRANCE DOORS

Cast Nickeline Forged Iron Finish

Electric Push Button
EH54161
4⅛ x 2⅛ inch
Each **$4.40**



Lock 5743, Japanned Iron Case 5¼ x 3¾ x ¾ inch. Cash Bronze Front 8x1¼ inch. Backset 2¾ inch. Easy Spring Latch Bolt. Latch Bolt operated by Thumb Piece from Outside and Knob from Inside. Both Bolts by Key from Outside at all times. Dead Bolt by Thumb Turn from the Inside. Thumb Piece Outside is locked by Stop in Face. One Ball Bearing Cylinder. Three Nickel Silver Keys. Key Changes unlimited.

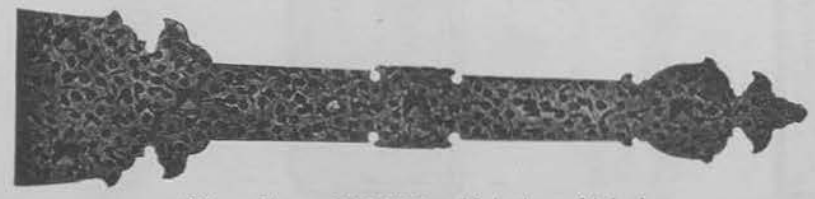
Electric Push Button
EH56061
2⅜ x 1¾ inch
Each **$3.30**

Hinge Strap. **EH56098** x 20 inch or 30 inch for 4" Butts.
20" each **$4.40**
30" each **$6.60**

Door Knocker
EH54168
7 x 3 inch
Each **$3.30**

Door Knocker
EH56068
6½ x 3 inch
Each **$4.40**

Cylinder Set
EH541-880
11¾ x 2½ inch, with Cylinder Collar 4⅛ x 2⅛ inch.
Per Set **$16.50**

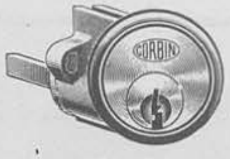


Hinge Strap. **EH54198** x 18 inch or 24 inch for 4 inch butts.
18" Each **$4.40**
24" Each **$5.28**

Cylinder Set
EH560-880
13¼ x 2½ inch, with Cylinder Collar 3 x 2⅛ inch.
Per Set **$15.40**

These Cylinder Sets are Reversible and Suitable for Doors 1¾ to 2¼ inch thick. Complete Set consists of One Handle, One 2¼ inch Wrought Bronze Plain Knob with Rose, Thumb Turn and Lock in Forged Iron Finish.
Cylinder Sets can be furnished Keyed alike, Master or Grand Master Keyed when so ordered.

CORBIN KEY PLATES, SPINDLES, AND MISCELLANEOUS ITEMS



Corbin Rim Cylinder

A251 Polished Brass finish.....Each $1.32
Ball bearing, for doors 1 to 2½ inch thick, three nickel silver keys, key changes unlimited.

Corbin Mortise Cylinder

A253 x 1¼ inch Polished Brass finish. Each $3.00
Ball Bearing, three nickel silver keys, key changes unlimited.

Wrought Brass Key Escutcheon

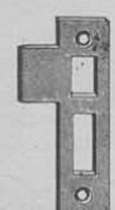
A2560 Polished Brass finish. Per Doz. $1.44
Size 1⅝ x 1⅛ inch.
One dozen in a box with screws.

Wrought Brass Key Escutcheon

A2533 Polished Brass finish Per Doz. $1.44
Size 1½ inch diameter.
One dozen in a box with screws.

Thumb Turn

A2140 Polished Brass finish Per Doz. $3.96
Wrought Brass Plate 1⅝ x 1⅛ inch, Cast Brass Turn, 5/16 inch spindle.
One dozen in a box with screws.



Lock Strikes—Wrought Steel

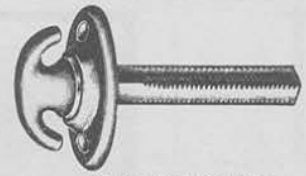
For inside Mortise Locks

R0614 Old Copper finish Per Doz. $1.20
EA0614 Dull Brass finish Per Doz. $1.20

For Front Door Locks

R0636 Old Copper finish Per Doz. $3.00
EA0636 Dull Brass finish Per Doz. $3.00

Rim Lock Strikes, cast iron japanned. Per Doz. $1.08
One dozen in a box with screws.



Closet Knob Spindle

R44¼ Old Copper finish ....Per Doz. $4.18
EA44¼ Dull Brass finish ....Per Doz. 4.18
Wrought Steel Plate, Cast Iron Turn, 5/16 inch spindle; Length 4 inch.

Knob Spindles

For Standard Shank Knobs

	Size	Length	
36	5/16 inch	4¼ inch	Per Dozen $1.32

For Simplex Shank Knobs

	Size	Length	
056¼	5/16 inch	4½ inch	Per Dozen $1.32

For Simplex Shank Knob by Standard Shank Knob

	Size	Length	
056½	5/16 inch	3⅝ inch	Per Dozen $1.32

Swivel for Standard Shank Knobs

	Size	Length	
36½	5/16 inch	5 inch	Per Dozen $2.64

Swivel for Simplex Shank Knobs

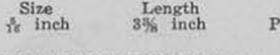
	Size	Length	
036¾	5/16 inch	5 inch	Per Dozen $2.64

Swivel for Standard Shank Knobs
⅜ x 5/16 inch centres

	Size	Length	
031	5/16 inch	5 inch	Per Dozen $3.64

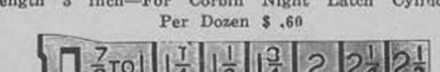
Swivel for Simplex Shank Knobs
⅜ x 5/16 inch centres

	Size	Length	
034	5/16 inch	5 inch	Per Dozen $3.64

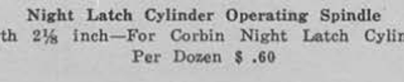


Split Spindle for Use With Sectional Locks

	Size	Length	
45½	5/16 inch	3⅝ inch	Per Dozen $4.40



Night Latch Cylinder Connecting Screw—
Length 3 inch—For Corbin Night Latch Cylinders. Per Dozen $ .60

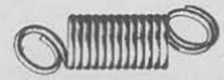


Night Latch Cylinder Operating Spindle
Length 2⅛ inch—For Corbin Night Latch Cylinders. Per Dozen $ .60

Flat Steel Lock Spring

	Width		
002	3/32 inch	Per Dozen Lengths	$3.60
003	5/16 inch	Per Dozen Lengths	$3.60
004	¼ inch	Per Dozen Lengths	$3.60

Supplied in 3 foot lengths.
One dozen lengths in a box.



Extension Lock Springs

006 Brass Per Dozen .... $ .60

Compression Lock Spring

	Wire gauge		Diameter	Per Doz. Lengths
008	.022	Brass	¼ inch	$3.60

Supplied in 3 foot lengths.
One dozen lengths in a box.

Knob Screws

14 16

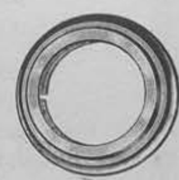
EA14 Dull Brass 5/16.....Per Gross $2.64
16 Blued ....Per Gross .56
Size ⅜ inch x No. 9
One gross in a box.

Knob Washers

18 For 5/16 inch Spindle Per lb..... $1.44
Wrought Steel, one lb. in a box.

Auxiliary Spring

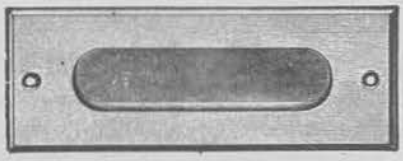
For Use With Lever Handles
Inserted in wood under rose or escutcheon.
25 Phosphor Bronze ....Each $ .34
For 5/16 inch spindles.



Adjustable Cylinder Collar

Wrought Brass
A553 Polished Brass finish Per Doz. $3.15
For Cylinders 251 or 253
One dozen in a box.

Letter Drop Plates



Wrought steel, size 6¾" x 2½", opening 4½" x 1"

R02305—Antique copper	Per doz.	**$6.72**
EA02305—Dull brass	Per doz.	**6.72**

Six in box with screws.

Wrought bronze, size 6¾" x 2½", opening 4½" x 1".

R2305—Antique copper	Per doz.	**$7.92**
EA2305—Dull brass	Per doz.	**7.20**

Six in box with screws.

Wrought bronze, size 6¾" x 2½", opening 4½" x 1".
With English word "LETTERS" on flap
French word "LETTRES" on flap.

R2307F—Antique copper	Per doz.	**$7.92**
EA2307F—Dull brass	Per doz.	**7.20**

Six in box with screws.

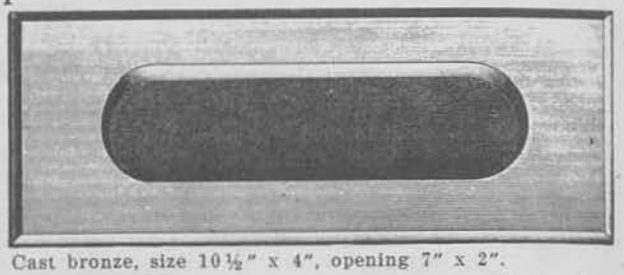
Package Plates

02338 to 2339

Size 4½ x 10¼ in. Opening 2¾ x 7½ in.

No.		Each
	Cast Iron	
02338	Polished, Plated	**$5.50**
02339	Polished, Plated, with Back Plate	**8.24**
	Cast Bronze	
2338	Polished	**7.16**
2339	Polished, with Back Plate	**10.74**

Three in a box, with screws.



Cast bronze, size 10½" x 4", opening 7" x 2".

EA2334—Dull brass ..... Each **$5.50**

Six in box with screws.

Push Plates

02352
2352

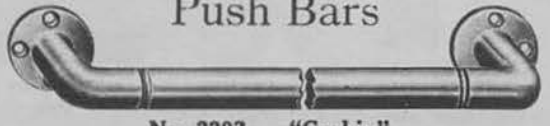
2300

No. R02352	Steel Antique Copper Finish 10 x 2¾ in. Per doz.	**3.86**
No. EA02352	Steel Dull Brass Finish 10 x 2¾ in. Per doz.	**3.86**
No. R2352	Bronze Antique Copper Finish 10 x 2¾ in. Per doz.	**10.16**
No. EA2352	Brass Dull Brass Finish 10 x 2¾ in. Per doz.	**9.24**
No. 2300	Bevel Plate Glass 12 x 3 in. Per doz.	**4.62**

Kick Plates

No. 2314 Wrought Brass or Bronze 14 gauge
Price on application

Push Bars



No. 2203 — "Corbin"

A heavy type push bar; 2 ins. diam.; bases of cast bronze; wrought bronze bar 1 ins. diam. Projects 2¼ ins. Clearance 1¼ ins. In lengths as below. (Measured centre to centre.)

No.	Finish	Each List
B-2203x24".	Polished Bronze	$6.40
x30".	Polished Bronze	7.20
x36".	Polished Bronze	7.92

Door Pulls

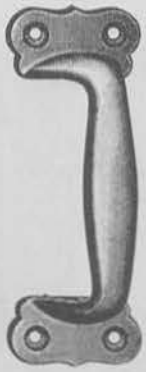
Cast Bronze

Length over all 7½ in., center to center of bases 6¼ in., width of bases 2 in.

	Each
No. EA4332—Dull brass	$1.34

Weight each 1 pound.

Two in a box, with screws



Cast Iron
Length 6 inch

	Per Doz.
J04328 Japanned	$1.36
RTO4328 Antique Copper	$1.96
EATO4328 Dull Brass	$1.96

One dozen in a box.

Cast Brass
Length 4 inch

EA4327 Dull Brass	$3.80
E4327 Nickel ..	$4.16

Six in a box.

Wrought Steel

Japanned

Size 8¼ x 2 inch

	Per dozen
No. 575	$1.40

One dozen in a box.

Wrought Steel

Length 10¾ in., width at ends 2½ in.

	Per Dozen
No. 1265J—Japanned.	$6.40

Weight per dozen 11⅕ pounds.

One-half dozen in a box, with screws

Wrought Steel, Japanned

No	482J-2
Length, in.	5¾
Width ends, in.	1½
Wt. dozen, lbs..	2⅒
Per Dozen.....	$1.80
No.	482J-3
Length, in....	6½
Width ends, in.	1¾
Wt. dozen. lbs..	2¾
Per Dozen.....	$1.90

One dozen in a box, with screws

04398, 4398

No.	Size, In.	Wrought Steel	Price Gross
J04398	4¾	Japanned	$4.80
0498	4¾	Plated	6.00
		Cast Bronze	Doz.
4320	4⅝	Polished	$3.24

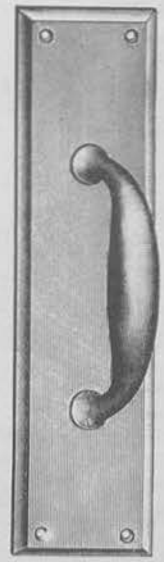
Two dozen in a box, with screws

04327, 4327

Width 1⅛ in.

No.	Size, In.	Cast Iron	Price Dozen
J04327	4	Japanned	$ .44
T04327	4	Plated	.68
04327	4	Pol.. Plated	1.36
		Cast Bronze	
4327	4	Polished	$3.80

Six in a box, with screws

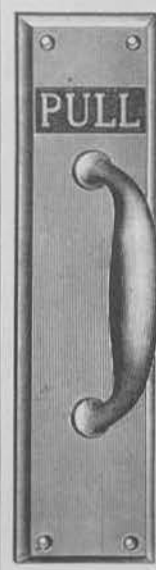


4480, 4481 (Grip No. **4412**)
4482 (Grip No. **4413**)

Columbia Design

No.	Size, In.	Cast Bronze	Price Each
EA4480	12 x 3	Polished	$4.42
EA4481	14 x 3½	Polished	5.52
EA4482	16 x 4	Polished	7.20

Two in a box, with screws



4490, 4491 (Grip No. **4412**)
4492 (Grip No. **4413**)

Columbia Design

No.	Size, In.	Cast Bronze	Each
4490	12 x 3	Polished	$4.98
4491	14 x 3½	Polished	6.08
4492	16 x 4	Polished	7.76

Wrought Bronze

Size 10 x 2¾ inch

	Each
EA 4470 Dull Brass	$2.42
B 4470 Polished Bronze	2.42
R 4470 Antique Copper	2.66

DRAWER KNOBS

Round Cast Brass Knobs
With Machine Screw.
Price per dozen

No.	132A	132B	132
Size, inch	¾	⅞	1 1/16
Pol. Brass or Bronze	$1.70	$1.84	$2.00
Dull Brass	1.70	1.84	2.00

Fluted Glass Knobs
Crystal Glass (Clear)

Complete with nickel plated bolts and nuts.

No.	A61	A62	A63
Size inches	⅞	1⅛	1⅜
Per dozen	$ .88	1.00	1.22

Round Wood Knobs
In Plain Oak or Gum Wood

Size, inches	1	1¼	1½	1¾
Per doz.	$ .57	.59	.63	.66

3 dozen in a box.

Square Wood Knobs
In Plain Oak or Gum Wood

Size, inches	1	1¼	1½	1¾
Per doz.	$1.34	1.40	1.46	1.47

3 dozen in a box

No. 68—Knob—Cast Brass— 15-16 inch Diameter. . . . . Doz. $2.42
No. 68½—Knob—1⅛ inch Diam. 3.41
No. 68¾—Knob—1⅝ inch Diam. 5.50

DRAWER PULLS

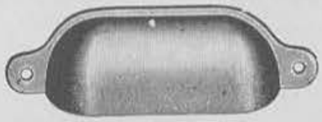
Wrought Steel, 3½ in.

R01366	Antique copper, Per doz.	$ .55
EA01366	Dull brass.....Per doz.	.55
E01366	Polished nickel, Per doz.	.61

Wrought Steel, 3 in.

R01367	Antique copper, Per doz.	$ .51
EA01367	Dull brass ....Per doz.	.51
E01367	Polished nickel, Per doz.	.56

Six dozen in a box

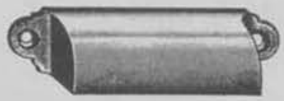


Wrought Steel, 3¼ in.

EA01361	Dull brass ....Per doz.	$ .66
E01361	Polished nickel, Per doz.	.72

Six dozen in a box

Cast Iron Polished Plated
Size 2⅛" x 3½" Opening ¾" x 2⅛"
EA01371 Dull brass.....Per doz. $2.57
Three dozen in a box



Cast Iron Polished 1 x 4 in.

R01360	Antique copper, Per doz.	$2.00
EA01360	Dull brass ....Per doz.	2.00

Three dozen in a box

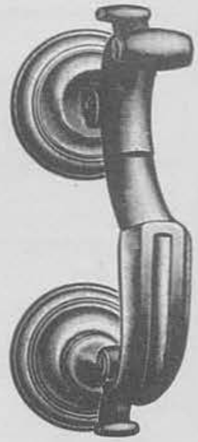
Wrought Steel 2⅛ in.

No.950AC	Antique copper, Per gro.	$6.40
No.950DB	Dull brass .....Per gro.	6.40

One gross in box with screws

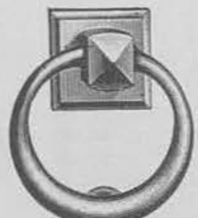
We refer you to our customers as to our service.

DOOR KNOCKERS



1904
Size 8¼ x 2¾ in.

No.
1904 **Cast Bronze,** Polished
Weight each, 2¼ lbs. **$11.00** Ea.



75369
Size 5 x 4⅛ in.
Ring 4⅛ in. Dia.

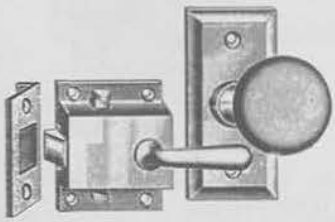
No.
75369 **Cast Bronze,** Polished
Weight Each, 1½ lbs. **$6.82** Ea.

The above knocker can be furnished on plate made from cylinder collar of any sectional door handle at additional price.

75368
Size 5¼ x 2½ in.
Plate 2 x 2 in.

No.
75368 **Cast Bronze,** Polished
Weight each, 15 oz. **$1.88** Ea.

SCREEN DOOR LATCHES

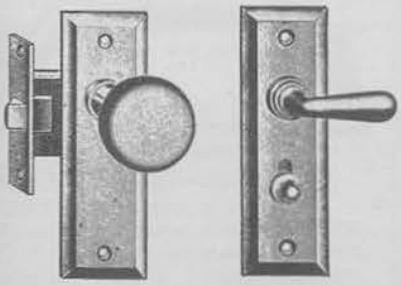


Catch 2¼" x 1⅞", Knob 1¾ in. dia. Escutcheon 3¼ in. x 1½ in.

Cast iron case with wrought steel knob and escutcheon.

R-T03463 Antique copper
Per doz. $9.60

EA-T03463 Dull brass
Per doz. $9.60



Case 2 x 2⅛ x ½ in. Knob 1¾ in dia. Escutcheon 4½ x 1½ in.

Cast iron case, wrought steel knob and escutcheon.

R-03457 Antique copper
Per doz. $9.84

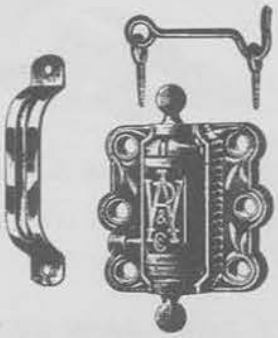
EA-03457 Dull brass
Per doz. $9.84

EA3457 Dull Brass
Per Doz. $20.40

SCREEN DOOR CATCHES

Snappy Catch
No. 210 Wrought Steel- Per doz **$2.70**

SCREEN DOOR SETS



No. 0231

Set consists of 1 pair of No. 20 spring hinges, 1 steel pull, one 2½ inch hook and eye. All complete with screws.

Japanned finish.

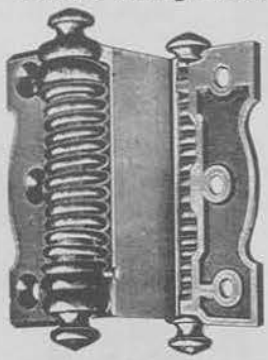
No. 0231 .....Per doz. sets **$3.33**

No. 1140 Same as above with No. 40 Hinge. Doz. Sets..... **$4.00**

One set in a carton

Four dozen sets in a case

Double Acting Screen Door Hinge



No. 50

Swings

Both

Ways

Made of cast grey iron with springs of crucible steel wire. For doors 1⅛ inch thick. Japanned finish.

No. 50 ..... Per doz. pairs **$7.35**

No. 40

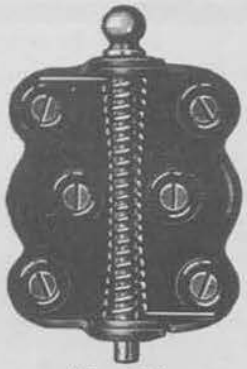
Made of Cast Grey Iron with springs of crucible steel wire. Japanned finish, Size overall 3x4 inches.

No. 40 ..... Per doz. pairs **$2.15**

Half dozen pairs in a box

Half gross pairs in a case

SCREEN DOOR HINGES



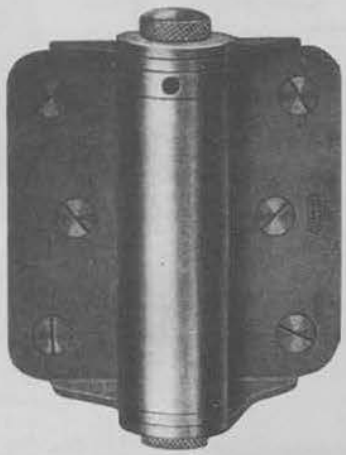
No. 231

Wrought Steel—Loose Pin

Equipped with a spring of original design, which is distinctive in appearance and insures smooth operation of the door. Size open 3x2½ inches. Japanned finish.

No. 231.....Per doz. pairs **$2.15**

Half dozen pairs in a box



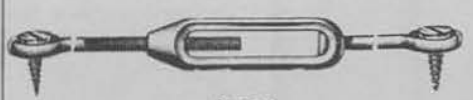
No. 154

Heavy wrought steel. Adjustable tension. The spring is made of the best tempered steel wire, permitting tension adjustment sufficient for the heaviest requirements. Size open 3x2¾ inches.

Finish	Per pair.
Japanned dead black	**$1.00**
Polished brass	**1.10**
Nickel plated	**1.20**

One pair in a box with screws

SCREEN DOOR BRACES



0533

A quick tension door brace, for taking the sag out of screen doors. Dead black finish.

Lengths	42 inch
Per dozen	**$1.30**

One dozen in a box with screws.

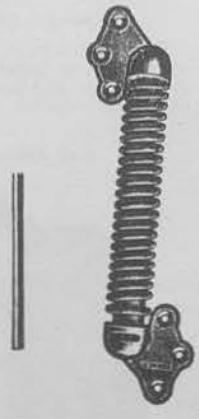
DOOR SPRINGS

Perfect Coil Door Springs
Japanned Finish.

Length 16 inches. Complete with screw hooks.

No.	3	6
Diameter, inches	7/32	1/2
Per doz.	1.10	1.60
No.	4	
Diameter, inches	5/8	
Per doz.	$1.30	

Nos. 3 and 4 for screen and light doors.
No. 6 for heavy doors and gates.
One dozen in a box.



Reliable Door Springs

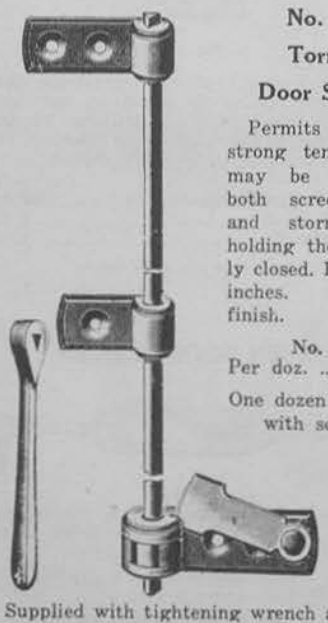
Stamped steel Reinforced Brackets with 3 screw holes in each.

Ratchet tension adjustment. Powerful spring with tightening pin.

Black Japan finish.

No.	Length	For Doors	Per doz.
270	7 inch	Light	$3.40
271	8 inch	Medium	4.40
272	10 inch	Heavy	7.00

No. 270 and 271—One dozen in a box.
No. 272—Half dozen in a box.



No. 39 Torrey Door Spring

Permits a very strong tension and may be used on both screen doors and storm doors holding them tightly closed. Length 38 inches. Japanned finish.

No. 39
Per doz. $5.20

One dozen in a box with screws.

Supplied with tightening wrench as shown.

SASH AND DRAWER ROLLERS

01794 -Cast Iron Japanned

Size plate, ins.	5/8 x 1 1/2	3/4 x 1 5/8	7/8 x 2	1 x 2 1/8	1 1/4 x 2 1/4
Per Doz.	$ .60	.75	1.00	1.20	1.44

PULL DOWN SASH HOOKS

For 7/8" Pole

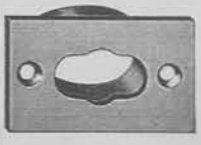
Cast Iron, length 4 1/2 in.

EA-T03197

Dull brass Per doz.... $5.28

1/2 dozen in a box

EAT03196—2 1/2" $3.64



Sash Sockets

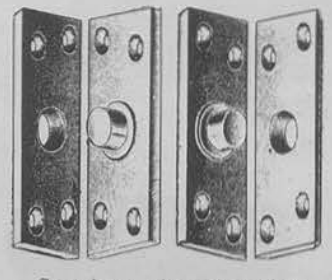
Cast Iron

EA-T03187

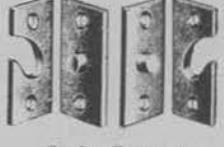
T03187 Dull brass Per doz. $1.48
Size 1 1/4 x 2 1/2 in.

Twelve in a box, with screws

Sash Centers

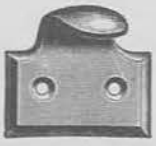


Cast iron, size 4" x 1 1/4"
C01334 Coppered
Per doz. sets..... $3.46



Sash Centers
Cast iron, Japanned
J01330 Size 2 3/4" x 1"
Per doz. sets..... $1.24
J01331 Size 3 3/8" x 1 1/8"
Per doz. sets $2.44

SASH LIFTS



Hook Sash Lifts
Size 1 5/8 inch
No. 03308—Wrought Steel Plated

		Per Doz.
EA03308	Dull brass	$ .36
R03308	Antique copper	.36
E03308	Nickel plated	.40

No. 3308—Wrought Brass or Bronze

		Per dozen
EA3308	Dull brass	$1.38
E3308	Nickel plated	1.52

1/2 gross in a box.

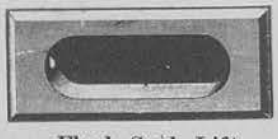
Bar Sash Lifts
Size 4x1 inch
No. T03396—Cast Iron Plated

		Per dozen
EAT03396	Dull brass	$ .88
RT03396	Antique copper	.88
ET03396	Nickel plated	.96
CR03396	Chrome plated	1.68

No. 3396—Cast Brass or Bronze

		Per dozen
EA3396	Dull brass	$2.94
E3396	Nickel plated	3.24

One dozen in a box.



Flush Sash Lift
Size 1 1/2 x 3 inch Wrought Steel

		Per dozen
EA03316	Dull brass	$ .96
R03316	Antique copper	.96

3 dozen in a box.

SASH CORD

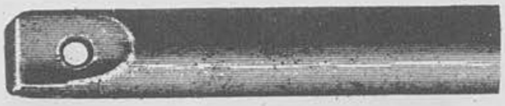
See Page 335 for full details on sash cord.

SECTIONAL SASH WEIGHTS

Common cast iron; flaring; 1 in. high, 1 3/4 ins. bottom diam. 1 3/4 ins. top diam. 5/8 in. hole.

1/2 Pounds—Per 100 lbs. list..... $5.50

SASH WEIGHTS

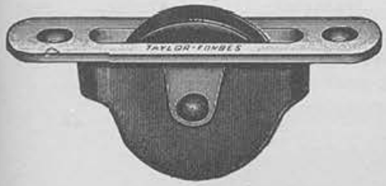


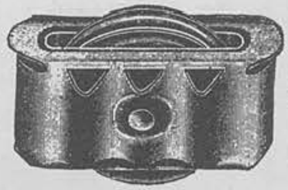
Cast Iron Per Pound

Sash Weights—Round, smooth finish, sizes 3 to 20 lbs. .... Net **$ .03½**

SASH PULLEYS

FOR CORD





No. 104—Unfinished face; ground groove, steel rivet axle. 2-inch wheel; 4⅝ x 1 inch face. Requires No. 10 F.H. Screws. Weight per dozen, 4½ pounds **Per Dozen $1.70**

No. 1100. To apply, Bore Four 13-16 inch holes Wrought steel case; 2-inch wheel; face plate, 1⁵⁄₁₆ inch wide, 2¹⁵⁄₁₆ inches long. Automatic saw-tooth fastening; fits mortise 2¼ x ¾ inches. One-piece hollow cold rolled steel axle.
Weight per dozen, 1⅝ pounds. **Per Dozen Net .65**
In bulk, 100 dozen in a case.

SASH CHAIN

Special Rust Proof. 500 feet on a reel.
Used in fireproof construction. Well made even links.

Nos.	**8**	**100**	**250**
Per 100 feet	**$5.00**	**$7.00**	**$10.00**

PULLMAN SASH BALANCES
HOW TO ORDER

(A) Give Weight of Each Sash

Unit A takes uniform mortise for 4 to 29 lb. sash.
Unit L takes uniform mortise for 10 to 48 lb. sash.
Unit M takes uniform mortise for 24 to 105 lb. sash.
Weight is usually marked on sash at the mill. Generally the upper and lower sash weigh the same, but there are so many exceptions to this rule that the only safe procedure is to weigh each separate sash, unless they are identical in size and kind of glass. Specify the weight of upper and lower sash separately.

(B) Caution

Do not estimate the weight of sash, but weigh each one on scales. There is much variation in the weight of sash of the same dimensions. Do not place studs too close to frame. Be sure that sufficient space is left for the Balances.
Where there is not room for the Side Type Balances, use the Overhead Type. Attach tape to sash for Overhead Type about 3 inches down from top rail as compared with 10 inches for Side Type–

(C) Finish

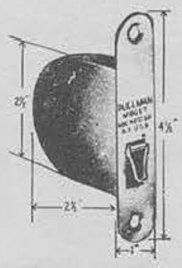
UNITS "A" and "L"—All exposed surfaces have a special rust proof finish.
UNIT "M"—All exposed surfaces except hood finished in rust resisting silvery mat finish.

Pullman Sash Balances

(D) Definition of Terms—Run and Length of Tape

Run of tape represents in inches the distance the sash can travel within the window opening.

Extra tape length does not in any sense of the word increase the run or lift of the Balances except as noted in the preceding schedules for Units A, L and M. It only permits placing them higher up or farther away from the sash. An extra charge is made for additional run or length of tape beyond that appearing in the tables.



MIDGET UNIT F SIDE TYPE

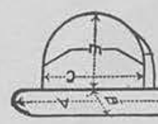
Standard length of tape for both types is 40"

Bal. No.	Weight of Each Sash (Pounds)	Set of 4 Bal. For 2 Sash
2-F	4 to 5	$3.08
3-F	5 to 7	3.08
4-F	7 to 9	3.08
5-F	9 to 11	3.33
6-F	11 to 13	3.33
7-F	13 to 15	3.33

Unit "A" Sash Balance

For SASH WEIGHING 4 to 29 lbs.
Weight of Unit "A" per set—3 to 5 lbs.
The length of tape in schedule below, is the extreme run or lift possible.

SIDE TYPE



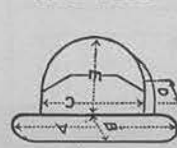
Dimensions
A....6"
B....1"
C....3⁷⁄₁₆"
E....3⁷⁄₁₆"

Bal. No.	Weight of Each Sash (Pounds)	Adjustable	Non-Adjustable
2–A	4 to 5	**$4.62**	**$3.85**
3–A	5 to 7	**4.62**	**3.85**
4–A	7 to 9	**4.62**	**3.85**
5–A	9 to 11	**5.40**	**4.48**
6–A	11 to 13	**5.40**	**4.48**
7–A	13 to 15	**5.40**	**4.48**
8–A	15 to 17	**5.64**	**4.74**
9–A	17 to 19	**5.64**	**4.74**
10–A	19 to 21	**5.64**	**4.74**
11–A	21 to 23	**6.41**	**5.40**
12–A	23 to 25	**6.41**	**5.40**
13–A	25 to 27	**6.41**	**5.40**
14–A	27 to 29	**6.41**	**5.40**

Unit "L" Sash Balance

For SASH WEIGHING 10 to 48 lbs.
Weight of Unit "L" per set—9 to 11½ lbs.
Extreme run of tape possible: No. 3L to 14L inclusive is 60"; No. 15L to 17L is 54"

SIDE TYPE



Dimensions
A....7⁷⁄₁₆"
B....1⅜"
C....4⁷⁄₁₆"
E....4⅜"

Bal. No.	Weight of Each Sash (Pounds)	Adjustable	Non-Adjustable
3–L	10 to 11	**$8.08**	**$6.66**
4–L	12 to 13	**8.08**	**6.66**
5–L	14 to 15	**8.08**	**6.66**
6–L	16 to 17	**8.97**	**7.43**
7–L	18 to 19	**8.97**	**7.43**
8–L	20 to 21	**8.97**	**7.43**
9–L	22 to 23	**8.97**	**7.43**
10–L	24 to 26	**10.13**	**8.47**
11–L	27 to 29	**10.13**	**8.47**
12–L	30 to 32	**10.13**	**8.47**
13–L	33 to 35	**10.13**	**8.47**
14–L	36 to 38	**10.78**	**8.97**
15–L	39 to 41	**10.78**	**8.97**
16–L	42 to 44	**10.78**	**8.97**
17–L	45 to 48	**10.78**	**8.97**

AWNING PULLEYS

Single Wheel — Solid Eye

Cast Iron, Steel Axle

Price Per Dozen

Size, Diam. Wheel, inch	1	1¼	1½	1¾	2	2½
For rope, inch	¼	¼	5/16	⅜	7/16	⅝
No. 74 Japanned	.93	1.15	1.60	2.16	2.96	5.68
No. 174 Galvanized	1.06	1.30	1.76			

No. 45— Screw Pulleys

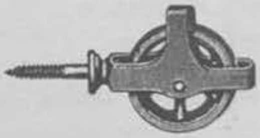
Cast Iron, Steel Axle
Japanned

Size, Diam. wheel, inches	1½
For rope, inch	¼
Per Dozen	1.09

Two dozen in a box

No. 46— Screw Pulleys

Japanned — Guarded



Size, inches 1½
For rope, inch ....¼
Per dozen $1.92

—1 dozen in a box

PULLEYS

No. 25—Side Pulleys

Cast Iron — Japanned — Single Wheel

Size, Diam. wheel, ins.	2	2½
For rope, inch	5/16	⅜
Per dozen	$2.32	$3.22

One dozen in a box

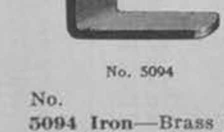
No. 273 Hay Fork Pulleys

Cast Iron—Swivel Eye

Size, Diam. wheel, ins. .... 5"
For rope, inch .... 1"
Per dozen $11.04

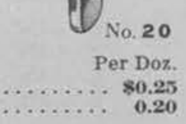
One dozen in a box

SHELF RESTS



No. 5094

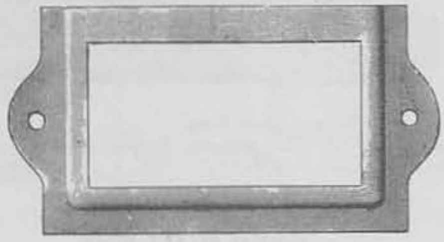
Illustrations are Full Size



No. 20

No.		Per Doz.
5094	Iron—Brass Plated	$0.25
20	Iron—Coppered	0.20

CARD HOLDERS



No.	For Card	Material	Finish	Per Doz.
300	2¾x1¼	Stamped Steel	Plated	$ .70
800	1 x1¾	Wrought Steel	Plated	.81

½ gross in a box

STAY JOINTS

No. 8994—Stay Joints

Wrought Steel, Nickel, Whitened.
Size ½x10 inches.

No. 8994 ....Per doz. pairs $7.40

One dozen pairs in a box

TRAP DOOR RINGS

No. 1215—Wrought Steel Flush Trap Door Ring

Bright Japanned Finish.

Size	Size of Plate	Per dozen
No. 1	3 x3½ inches	$5.10
No. 2	3½x3¾ inches	6.30

BRASS FLUSH RINGS

No. A521

Polished Brass

Size	Per dozen
1⅝ inch diameter	$3.30

One dozen in a box

No. A520

Polished Brass

Size	Per dozen
1 x1⅜ inch	$3.30
1¼x1⅝ inch	3.30
1½x1⅞ inch	3.30

One dozen in a box

"Silentis" Door Sheave

WITH REBOUND FLANGES FOR TRACK

A Moderate Price Sheave for General Use

No. 16993

With Rebound Flanges for Track

Wrought Steel—Solid Wheel—To Drive In

Welded Case, $\frac{5}{32}$ inch thick, has rebound flanges and double prongs.

No. 16993 ..... Per doz. **$1.65**

6 dozen in a box

Use No. 17297 Track shown below.

"Nox-All-Friction" Door Sheaves

With Rebound Flanges for Track

Wrought Steel—Hardened Steel Balls—To Drive In

Riveted case $\frac{11}{64}$ inch thick. Has rebound flanges and double prongs.

No. 16998½ ..... Per doz. **$3.75**

3 dozen in a box

SHOW CASE TRACK

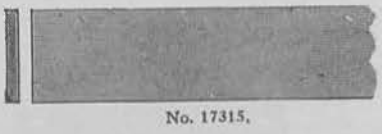
Copper Plated Wrought Steel Track

No. 17297—10 ft. lengths.....Per 100 feet **$17.00**

1000 feet in a case

WROUGHT STEEL SLIDING DOOR TRACK

Size, $\frac{1}{16}$ x $\frac{1}{2}$ inch



EDGES SMOOTH DRAWN

No. 17315.

No.		Per 100 Ft.
17315	Bright Steel, in 6, 8, 10 and 12 Foot Flat Pieces;	**$7.00**

Packed 1000 Feet in a case

10 Foot Pieces sent if size not stated.

Show Case Pull

Size 1 $\frac{1}{16}$ x 2 $\frac{7}{8}$"

		Per dozen
510 EA	Wrought Brass	**$1.65**
510 NP	Nickel Plate	**1.82**

One Gross in a box.

No. 500

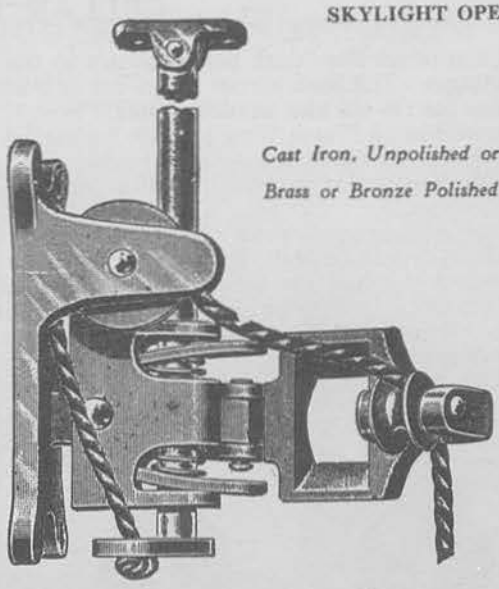
Wrought Brass

Size $\frac{7}{8}$ x $\frac{1}{16}$"

Per gross **$2.10**

Five gross in a box.

SKYLIGHT OPENER



Cast Iron, Unpolished or Polished—

Brass or Bronze Polished

No.	Size & Length of Rod	Each
141	**5/16"x18"**	**$5.75**

Packed without Screws

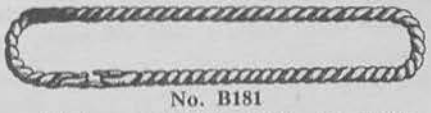
FANLIGHT OPENERS

Nos. B182 to B183

Length.....inches.....		12	15
Screw.....inches		⅜	⅜
No. **B182**	Iron, Coppered Each	**1.45**	**1.60**

One dozen in a box.

ENDLESS CORD

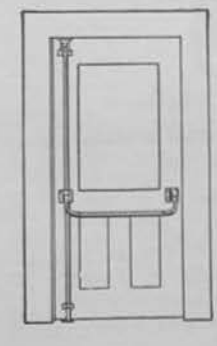


No. B181

With connecting links to work the openers.

To suspend 4½, 6, 7½, 9, 10½, 12, 15 feet. **$4.00 Doz.**

FIRE EXIT BOLTS



Can be supplied in Iron, Brass or Bronze to suit all conditions and specifications. Information gladly given upon request.

CELLAR WINDOW SETS

A set comprises the "dark parts" shown in the illustration.

Advantages—The Steel corner pieces act as a hinge and also form a brace for the sill and window frame.

The knotches on Frame Wing provide for partial opening (as shown by dotted lines) or full opening as desired.

The wing or sill part is slotted to allow ample play for pivot pin on frame part.

The lock is designed to draw the frame in tight to the sill as well as to furnish a lever pull.

This cellar window set is easy to put on, adjustable in operation, eliminating all props or hooks, etc., secure and compact.

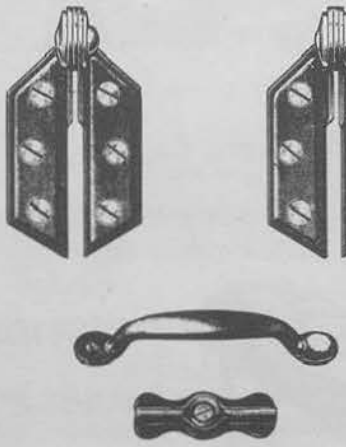
Packed—1 set in carton; 4 dozen sets in a case with ⅜" x No. 2 R.H. screws.

$4.60 Per Doz. Sets Finish—Baked Japan.

THE AUTOMATIC

Closed View

Open View



No. 1769
Wrought Steel Friction Cellar Window Set

Friction in the hinges holds the window open at any angle. Set consists of one pair of friction hinges, one pull and one 2 inch button.

Cadmium Plated.

No. 1769 ..... Per doz. sets **$7.70**

Twelve sets in a carton with screws.

Nos. **120** and **125**

Set No. 120 ..... $3.00 Doz. Sets

Consists of—

1—Heavy Japanned Cast Sash Fast.

1—pair 2 inch Bright Steel Butts.

1—only 2½ inch Blued Hook and Eye.

Complete in carton with screws.

PACKED—1 gross in a case.

Set No. 125..... $3.20 Doz. Sets

Same as above with parts Galvanized.

CHEST HANDLES

No. 1205

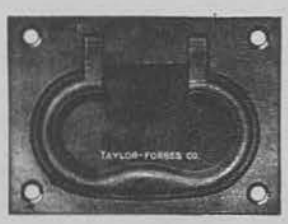
A Heavy Duty Wrought Steel Handle.

Bright Japanned Finish

Size Width of handle	Size of plate inches	Per doz. pairs.
3½ inch	3⅝x2⅞	**$7.70**
4 inch	4⅛x3	**10.00**

Size 3½—½ dozen pairs in a box.

Size 4 inch—¼ dozen pairs in a box.



Flush

Best Cast Grey Iron.
Baked Japan Finish.

Number	Size of plate Width Inches	Depth	Doz. Pr.
27	4⅜	3½	**$7.50**

No. 2201 FyeR-Ward Doors and Hardware

Regular Gravity Sliding Type

Both door and hardware carry Underwriters' labels

Space Requirements

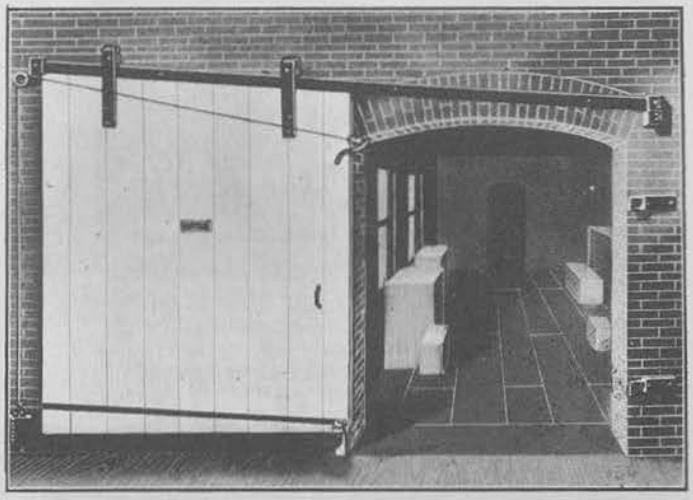
Square top opening requires 14 inches of head-room at edge of opening toward which the door slides in closing, and ¾-inch more for each additional foot the track extends beyond the centre. Fixtures require 13½ inches of side-wall room on side toward which door slides in closing and opposite side the width of opening, plus 19 inches.

To Find Area of Fire Door.

Door laps opening 4 inches each side and top (low corner). Multiply door width by height and add 5 per cent for inclined top.

List Price of FyeR-Ward Doors

$1.20 per sq. ft. door size. Add for hardware as per list below. Door hardware is attached to door at factory. No extra charge for attaching, but it saves installation expense.



Prices of Complete Sets of No. 2201 HARDWARE

Not including wall bolts, see list below.

(Same prices for No. 201 Hardware for 2-ply or 3-ply tin-clad doors)

Width of Opening with 1 Pair Hangers	Price List	Weight Per Set, Pounds,	Width of Opening with 1½ Pair Hangers	Price List	Weight Per Set, Pounds
3 feet	$22 60	165	6½ feet	$32 20	232
3½ feet	23 60	170	7 feet	33 20	238
4 feet	24 60	176	7½ feet	34 20	247
4½ feet	25 60	183	8 feet	35 20	258
5 feet	26 60	191	8½ feet	36 20	268
5½ feet	27 60	202	9 feet	37 20	276
6 feet	28 60	208	9½ feet	38 20	282
			10 feet	39 20	292

For 2-Ply or 3-Ply Tin Clad Doors

No. 201 Fixtures only, per set (Less Track, Strips and Hangers) Wt. 105 lbs. $14 80
(This set includes enough Brackets and Washers for openings up to 5 feet).
No. 102-84 Track only, with Brackets, weight 4½ pounds, per foot 64
No. 102 Hangers only, weight 30 pounds, per pair 5 20

Suggested Specification—Sliding Fire Doors to be R-W FyeR-Ward with Underwriters' Label and No. 2201 Underwriters' Labeled Hardware. Installation to be in accordance with standard details supplied by manufacturer.

Directions for Ordering

1. Give width and height of opening (not door).

2. Type (PL or PR—see below).

3. Thickness of wall —when bolts wanted.

Make sure sufficient space available, see first paragraph. If not, send sketch giving full details and special sets can be supplied.

If opening is arched top, give height to centre of arch.

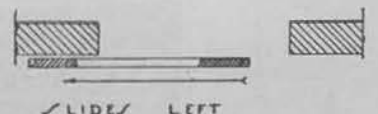
Doors lap 4" on sides and top.

Wall Bolt List

Track bolts 4 inches longer than thickness of wall; binder bolts (4), thickness of wall plus 2 inches and guide roller bolt (1), thickness of wall plus 1 inch.

No. Required		Prices of sets of Bolts of different lengths for different size openings of Nos. 2201–201 and 303 Fixtures							
Track Bolts	Total Bolts	Size of Opening	up to 8"	9"–12"	13"–14"	15"–16"	17"–18"	19"–20"	21"–22"
5	10	3'–4'6"	$2 00	$2 52	$2 80	$3 00	$3 30	$3 60	$3 80
6	11	4'7"–5'	2 28	2 80	3 20	3 30	3 60	3 90	4 20
7	12	5'1"–7'6"	2 52	3 20	3 60	3 70	4 00	4 30	4 60
9	14	7'7"–8'6"	2 92	3 60	4 00	4 20	4 60	5 00	5 30
10	15	8'7"–11'	3 12	4 00	4 40	4 60	5 00	5 30	5 70

Type P. L.



Type P. R.

R-W GARAGE DOORS

Rolltite

The Space-Saving Overhead Door

Inside View of Rolltite

For a space-saving garage door Rolltite overhead doors are the ideal doors. Made up of four or more sections, according to height. Hinged together and operated by a heavy spring. Can be had for any width opening up to 20 feet.

Industrial Garages—For large openings on factories, warehouses and garages Rolltite doors with **No.2 Heavy Hardware** are designed for convenience and long life, the heavy hardware stands up under severe usage and reduces maintenance charges.

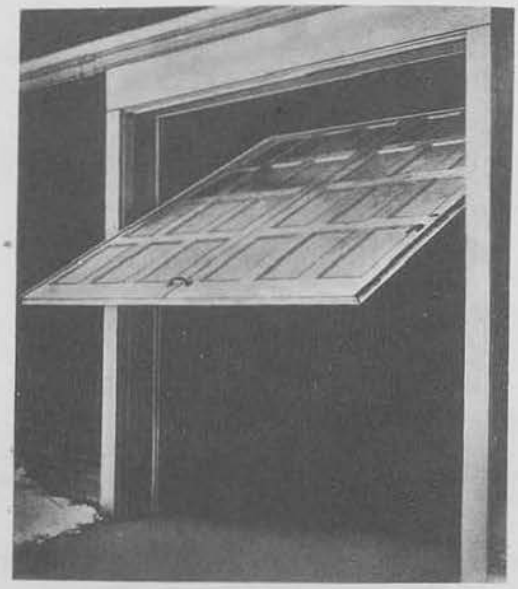
Special doors of hollow steel, extra heavy wood or combination steel and wood are available for installations requiring doors of unusual strength and durability.

Space Requirements

Headroom—11".

Side Wall (Jamb to corner)—8" on weight box side. 3" on other side.

The GLIDER Door



The only one-piece door with ALL these advantages:

1.—Counterbalanced with weights --- permanent adjustment.

2.—Rises vertically 3" before swinging out, --- can be locked in this raised position in case of ice or heaving floor.

3.—Opens entirely inside.

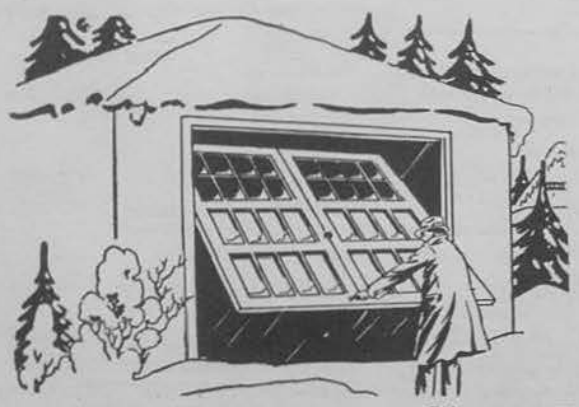
Space Requirements

Minimum Headroom—6". Can be installed with only 3" headroom, but vertical lift is not then available.

Side Wall Room—9" each side if weights hung on front wall. Weights can be hung on back wall.

This method only requires 4½" side wall room.

MONOTITE



This door has been on the market for several years with complete success. Its main advantage is that it is counterbalanced with weights, which insure a permanent and satisfactory adjustment. As these weights are hung on one side of the opening, the door has **no tendency to twist or bind in the opening** during the operation.

The counterbalance weights may be hung on either side of the opening. They do not have to be hung on the right side, as shown on the illustration.

As both lifting cables are attached to a single weight the door rises evenly.

The operation of this door is practically noiseless.

The door is hung in such a manner that very accurate counterbalancing can be secured, thus making operation extremely easy and convenient.

This door does not go entirely inside the garage like the Glider Door described on later pages. The projection is about 24".

Prices on application, for size of opening.

Richards-Wilcox

TILT-IN One-Piece Garage Door

Prices

NO. 80 "TILT-IN" HARDWARE, including all parts listed opposite.
Per set $20.00

OUTSIDE HANDLE and SELF-CONTAINED CYLINDER LOCK, extra.
Each $2.50

CABLES AND FITTINGS FOR HANGING WEIGHTS ON REAR WALL. (Two 17′ cables with clamps for 20′ garage). Pulley Brackets packed with standard set. No extra pulleys required. Per set $4.00
Extra cable, per lin. ft. ..... $ 0.12

Same Fittings for No. 80D Set ("Double-Width"). Heavier Cables, per set $6.50
Extra cable, per lin. ft. ..... $ 0.16

Steel Slugs or Punchings for Counterbalance Weights, packed in bags, per 100 lbs $3.00

"Double-Width" Opening Sets

for doors up to 8′-6″ high, not over 120 sq. ft. in area.

No. 80D "Tilt-In" Hardware for "2-car" openings same as standard set except heavier cables, reinforced horizontal tracks two angles 12′0″ long instead of 5′ and one extra 2″ angle width of door less 4.″

List price, per set $33.00

PUSH OR PULL OPERATION

A slight push from outside— NO LIFTING —A gentle push from inside

Opens Entirely Inside

The "Tilt-In" Door not only goes inside the garage but is pivoted near the centre, ensuring accurate and equal counter-balance in all positions—a new idea and a good one!

Low Headroom

Minimum headroom requirement is only 5½″.

Sidewall room on each side is 10″. If not available weights can be hung on back wall,— Minimum sidewall room in this case is only 3″.

Two or more openings in a row require only a 5″ post between—assuming weights hung at back.

No Header or Jambs required

All the hardware is fastened to the edge of a **standard 1¾″ door frame** (Except back ends of horizontal guide tracks.)

Makes installation easy and rigid.

Prices—Continued

No. 80 x 2 Tilt-In Hardware for doors over 8′6″ high not over 10′ high and not over 100 square feet.
Per Set **$30.00**

List of parts in No. 80 standard Set:

1 pair Corner Brackets with Pulley Angles.
4 Pulleys.
2 Vertical Tracks with 2 Top Rollers.
2 Horizontal Tracks with brackets.
2 Pivot Rollers.
2 Reinforcing Angles 5′0″ long.
2 Cables with fittings.
1 Top Spring Bolt.
2 Handles.
1 Pull Down Cord.
2 Rubber Bumpers.
2 Heavy Galv. Weight Containers with fittings.

All complete with bolts and screws.

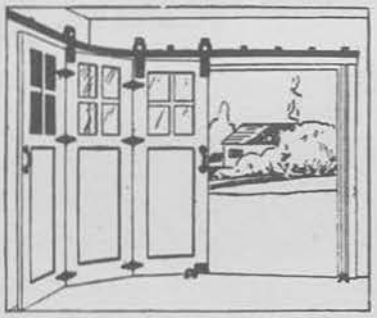
Tracks, Angles and Corner Brackets bundled together. All other hardware packed inside weight containers. Shipping Weight approx. 100 lbs.

ROUND THE CORNER

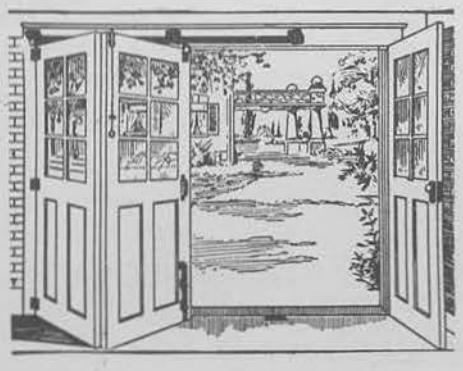
NO. 736 GLOBE SWIVEL HANGER SET

Three doors around the corner—a low priced outfit. No. 735 Hanger runs on No. 50 flat track.

No. 735 Hanger—Per pair	List	$ 2.21
No. 50 Track—Per 100 feet	"	16.00
No. 736 Outfit—For three doors, including 22 ft. No. 50 track	"	10.35
Same with 18 ft. track	"	9.75



SLIDETITE



We strongly recommend "Slidetite" Hardware. Doors hung on "Slidetite" slide and fold inside out of the way of wind and snow. These fixtures can be used for openings 8 feet to 30 feet wide using two to ten doors. "Slidetite" doors cannot sag or warp, because the weight is carried by the hanger in the track above.

This **Three Door Set** is ideal for a single car garage. One door is hinged to the side jamb and used as a passage door. The other two fold in the opposite direction, right or left. The swing door can be hinged to the other two if desired. Knob lock not supplied.

Everything is inside, out of the way of wind and weather. Snow and ice cannot interfere—not like pushing a swing door out against a pile of snow.

A perfectly clear opening is afforded—no posts in the way. No obstructions on the floor.

No sag or warp because the hangers carry the weight.

Offset Hinges allow doors to open clear of the jambs.

331—For 1¾-inch Doors

No.	Weight	Headroom Required	List
331A	48 lbs.	6"	$ 14 50
331A-5	64 lbs.	6"	20 00
331B	56 lbs.	6"	22 00
331B-5	78 lbs.	6"	27 70
331A-M	90 lbs.	6"	22 60
331B-M	105 lbs.	6"	30 00

A and B sets use 4 x 3½ Butts throughout.
A-5 and B-5 sets have Offset Hinges (as per cut).
"M" sets have 03 x 1 Jamb Hinges and 03 x 8 Centre Hinges.

332—For 2½-inch Doors

No.	Weight	Headroom Required	List
332A	115 lbs.	8½"	$ 31 00
332A-10	145 lbs.	8½"	38 50
332B	125 lbs.	8½"	38 50
332B-10	155 lbs.	8½"	46 00

A and B sets use No. 03 x 1 Jamb Hinges and 03 x 8 Centre hinges.
A-10 and B-10 sets use 03 x 10 Jamb Hinges and 03 x 8.

No. 514 R-W Top Spring Bolt

Heavy spring bolt, made in two sizes, No. 514 and No. 514 x 3. The former is used for garage work. No. 514 x 3 is extra heavy for industrial work. Can be used on sliding doors, right angle doors, sliding-folding doors, hinged doors, swinging in or out.

Prices	List
No. 514, (2 ft. chain), per dozen	$13 20
No. 514 x 2, (3 ft. chain), per dozen	13 90
No. 514 x 3*, each	5 00

No. 524 R-W Bottom Cane Bolts

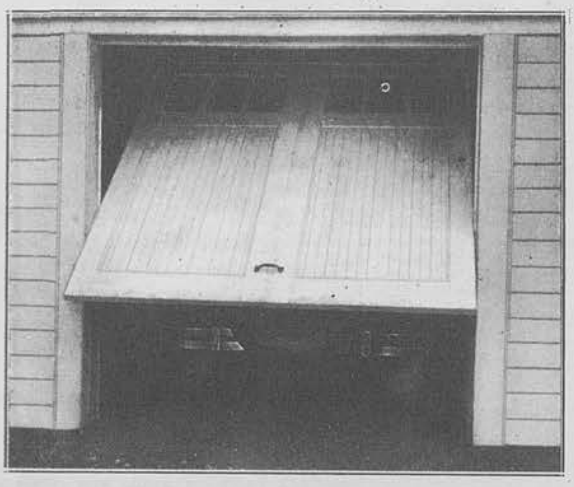
No.	Diameter	Length	Weight Per Doz.	List Per Doz.
524x0	½-inch	12"	20 lbs.	$ 5 70
524x1	⅝-inch	18"	30 lbs.	9 50
524x2	¾-inch	24"	54 lbs.	12 60
524x3*	1-inch	25"	132 lbs.	32 80

No. 524 Bottom Cane Bolt
Made in four sizes

STANLEY

Complete Garage Door Sets

"Lift-Up"

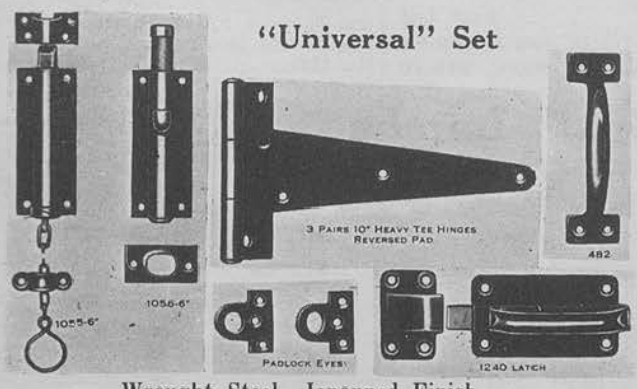


The above illustration shows the easy method of operation. A simple lift-up on the handle and the door "floats" up level with the top of the door frame.

"LIFT-UP"

Door Width	Door Height	Side Hung	Rear Hung
Up to 8'3	up to 8'5	**$20.00**	**$27.00**
6' " 6'6	8'5 " 9'2	**25.80**	**32.80**
6' " 6'6	9'2 " 10'2	**29.20**	**36.20**
6'6 " 7'	8'5 " 9'2	**26.20**	**33.20**
6'6 " 7'	9'2 " 10'2	**29.60**	**36.60**
7' " 7'6	8'5 " 9'2	**26.60**	**33.60**
7' " 7'6	9'2 " 10'2	**30.00**	**37.00**

"Universal" Set



Wrought Steel. Japanned Finish.

Complete hardware equipment for garage doors to be hung with hinges, consisting of:

Latch—No. 1240; adjustable to doors from ¾ to 3 ins. thick; tinned bolt; Sherardized spring; 4¾ ins. handle.

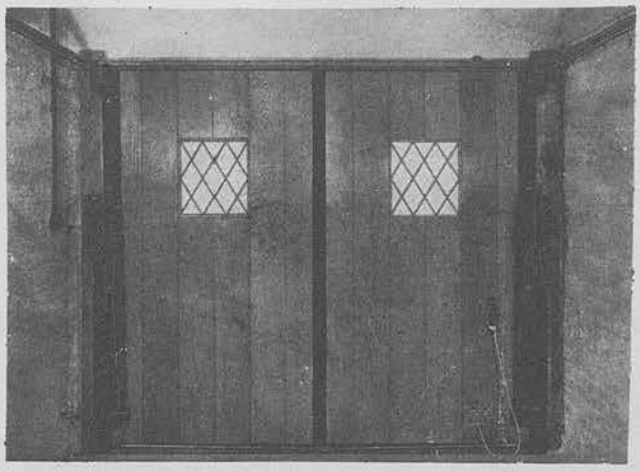
Chain Bolt—6 ins.; 24 ins. chain with 1⅛ ins. ring.

Foot Bolt—6 ins.; plate 5x2 ins.; ⅝ in. bolt with bronze cap; cupped floor plate; 1 in. stroke.

Hinges—3 pairs of 8 ins. extra heavy reversed pad tee hinges.

Universal. Set list.....**$ 5.50**

"Swing-Up"



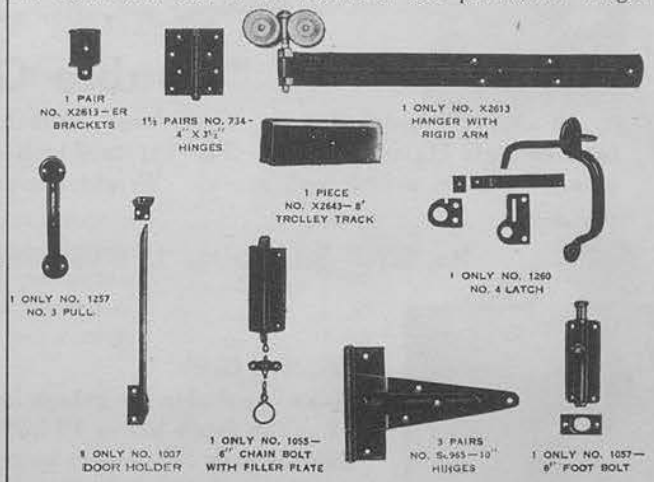
"SWING-UP" Door Width Height No. 2732 for Doors up to 200 lbs.	(6'-8')	(8'-9')	(9'-10')
6' to 8'	**$48.00**		
No. 2730 for Doors up to 375 lbs.			
6' to 8'6	**70.00**	**$84.00**	**$104.00**
8'6 " 9'	**70.40**	**84.40**	**104.40**
9' " 9'6	**70.80**	**84.80**	**104.80**
9'6 " 10'	**71.20**	**85.20**	**105.20**
For Doors over 375 lbs. add.....	**14.00**	**16.00**	**18.00**

Folding Sliding Garage Door Hardware

For Doors Opening In or Out

Set SX2613 (for 3-door installation) consists of:

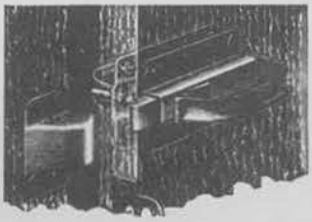
For doors not over 3' in width, or 150 pounds in weight



"FOLDING-SLIDING" OPENINGS		
SX2613—3D	Up to 9' Wide....	**$12.00** Set
SX2613—4D	8' " 12' "	**16.50** "
SX2613—5D	12' " 15' "	**22.00** "
SX2613—6D	15' " 18' "	**27.50** "

GARAGE AND BARN DOOR LATCHES

LATCHES



No. 1240—Steel Latches

For use on doors of Barns and Garages

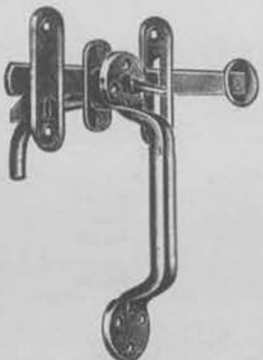
Adjustable for doors from ¾ to 3 inches thick. Operated by a handle from either side of the door.

Japanned wrought steel handles, plates and strike. Tinned bolt.

Size of case 5x2¾ inches. Supplied with padlock eyes.

No. 1240 .... Per doz. **$10.60**

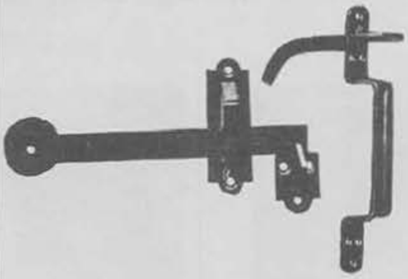
One in a box with wood screws.



No. 1252
Garage and Barn Door Latch

Made from extra heavy wrought steel Extreme length of handle 10½ inches. Length of bar 12 inches. Per doz. **$26.00**

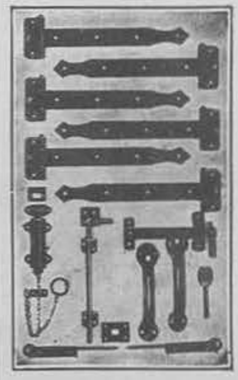
"Challenge" Latch



Barn Door Latch

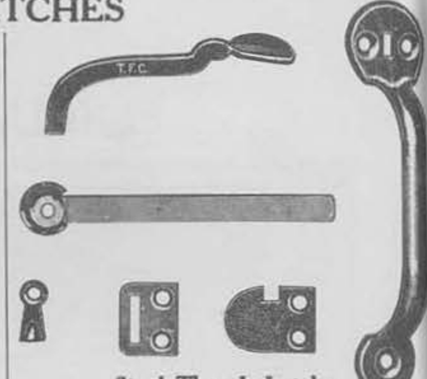
A heavy pressed steel thumb latch, of good quality and value. Length 9 inches.
No. 300 .... Per doz. **$10.00**

NO. 10 "SWINGTITE" SET



Here is an excellent set of hardware for swing doors. The hinges are stylish and particularly strong. There is a fine Double Grip Latch, top and bottom bolts and a pair of Door Dogs, all complete with bolts and screws. Packed 1 set in a box.

	Each, **List**
No. 10 "Swingtite" (03x0x12" hinges)	**$9.50**
No. 9 "Swingtite" (03x0x16" hinges)	**$10.70**



Steel Thumb Latches

Japanned finish—Malleable thumb piece.

No.	Length of Handle	Per doz.
2	6¾ inches	$2.45
3	7½ inches	3.95
4	9 inches	7.00

One latch in a box with screws.

One dozen in a carton.

NOTE:—Numbers 3 and 4 latches have padlock holes on guide and catch pieces.

No. 1289
Steel Mortise Thumb Latches

For Garages and Industrial Buildings

Latch bolt is drop forged and cold galvanized. Spring is made of hard phosphor bronze. Two handles 9⅜ inches overall.

Case 3¼ x 2⅞ inch. Backset 2¼ inch. Latch bolt is reversible and operates by thumb piece from either side. Bright japan finish.

No. 1289 .... Per Set **$4.90**

RW "Double Grip" Latches

No. 227B—Latch Bar 9¼ inches long; ¼ inch thick; 1 inch wide. Two heavy handles each 7¾ inches long. For 1¾ to 2-inch doors. Finished in black baked japan. One in a box with screws. Weight, per dozen, 33 pounds.

List
Per dozen $12 60

No. 227G—Same as No. 227B but packed with door plates.

Style G

No. 327G Latch This latch has **decorative features** which make it suitable for garage installations where decorative hinges are used. See page 45. The latch bar is 10 inches long; $\frac{5}{16}$ inch thick; 1¼ inches wide. Two heavy handles each 10½ inches long. Grip on the inside measures 5 inches long. Adjustable for 1¾ to 2½ inch doors. May be had with extra long thumb piece for doors 2½ to 3½ inches thick. Finished in black japan. One in a box with screws. Weight, per dozen, 70 pounds.

List
No. 327G Latch, per dozen $25 20

GARAGE HARDWARE

Flush Pulls and Bow Handles

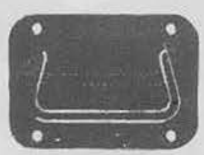
No. 71

No. 76

No. 80

No. 81—1, 2

No. 470



No. 170

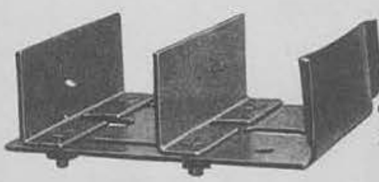
No. 535

No. 70

No. 291

No.	Height (Overall	Width (Overall)	Depth	Material	Finish	Weight	List Price
70—1 Flush Pull	7"	4½"	1⅜"	Steel	Black	12 lb. doz.	$6 60 doz.
70—2 Flush Pull	7"	4½"	1⅝"	"	"	13 lb. "	6 60 "
71—2 Handle	7½"	1⅜"	2¼"	"	"	5 lb. "	3 10 "
Matches No. 70-2 Flush Pull							
76—Flush Pull	5¾"	4⅜"	1"	Grey Iron	"	24 lb. "	12 80 "
80—Bow Handle	6¾"	1½"	1⅝"	"	"	8 lb. "	3 80 "
Matches No. 76 Flush Pull.							
81—1 Bow Handle	6¼"	1¾"	1½"	"	"	6 lb. "	2 90 "
81—2 Bow Handle	7⅝"	2"	2"	"	"	11 lb. "	5 00 "
170—Flush Pull	5¼"	3¾"	½"	Steel	"	7 lb. "	7 60 "
*470—Flush Handle	6⅜"	5"	2"	Malleable	"	3 lb. each	1 80 ea.
535—Flush Pull	5"	2½"	1¼"	Malleable or Brass	" or Polished Brass	12 lb. doz.	3 20 ea.
						12 lb. "	4 70 "
191 Handle,	15			Grey Iron	Black	3 lb. "	1 00 "
291 Bow Handle,	13½					3 lb. "	1 00 "

*No. 470 Back Plates required only for 1¾" doors, weight ½ pound each. ....List $ 30
Bolts extra, if desired. (Give thickness of doors). **Other finishes quoted on request.



No. 172-1 Parallel Floor Guide---Adjustable

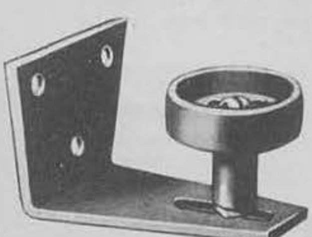
An adjustable guide for large size parallel doors. Easy to adjust. Suitable for either wood or concrete floors. Finished in black japan.

	List
No. 172-1 Parallel Guide (weight 3 lbs.), each	$2 00

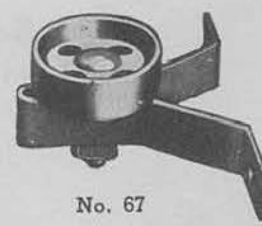
Stay Rollers

Prices

	List
No. 55 Stay Rollers, per dozen	$2 20
No. 57 Stay Rollers, per dozen	2 50
No. 53 Stay Roller, per dozen	3 40
No. 67 Stay Rollers, per dozen	3 80
No. 153 Stay Roller, per dozen	7 60
No. 66-1 Stay Roller, per dozen	3 20
No. 54 Stay Rollers, per dozen	7 60



No. 153 (Reversible)



No. 67

No. 53

No. 54

No. 55

No. 57

No. 66

BARN DOOR AND PARLOR DOOR HANGERS

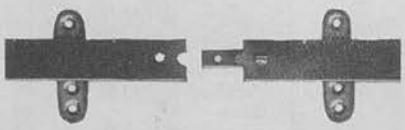
FOR DOORS UP TO 300 LBS.

For Doors of 300 lbs.

No. 321 "Champion" Hanger — Wheels, heavy pressed steel with roller bearings. Patented clevis brings door up within one-inch of bottom of track—flexible pendant, lateral adjustment.

Hangers—Per dozen pair ..... **List $34 00**

Lock Joint Clips and End Blinds are packed with all hangers.

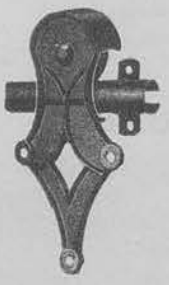


No. 50 Flat Track—Used with 843, 43 and 37 Hangers; 1¼" x 3/16" rail with brackets spaced every foot; 4, 6, 8 and 10 ft. lengths, ten lengths to a bundle.

No. 50 Track—Per foot ..... **List $ .16**

No. 544

For Doors up to 300 lbs.
Takes No. 543 Track



Red Japanned Finish; Malleable Iron One-Piece Apron and Hood; Rollers 2½ x 1⅛ in.; Non-Flexible; Apron fitted with Stop to prevent jumping the Track. Roller Bearings.

No. 544—Per Doz. Pairs 34.50

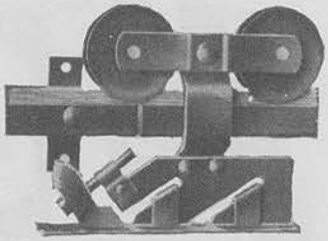
One Pair in Box, complete with Bolts, Two End Brackets and One Joint Connection; Weight 7¾ lbs. Pair.

No. 545 Hanger—Similar but made of steel.
Per doz. pairs 25.20

No. 543 Track is $1\frac{5}{16}$ in. diameter. Steel brackets. Joint connections with hangers. 100 lbs. per 100 ft.

Per foot **$0.21**

NO. 543 ROUND TRACK
Fits Hangers Nos. 543, 544 and 545
In 6, 8 and 10 Ft. Lengths



No. 11. "Model" House Door Hangers — Wheels steel with vulcanized fibre thread. Steel roller bearings. Runs on smooth hard maple track encased in steel channel and rivetted through bracket.

	List
Double Set—Complete with 14 ft. track...	**$9.20**
Single Set—Complete with 8 ft. track....	**4.50**

Bird-proof **Ice-proof**
Storm-proof **Jump-proof**

No. 31 Trolley Track—Copper-bearing, rust resisting steel. Every length hand straightened and tested.

6, 8 and 10 ft. lengths—Per ft. ..... **List $0.27**

BRACKETS

For No. 31 Trolley Track. No. 1 x 31 packed 4 dozen in a carton with lag screws. No. 22 x 31 for parallel track jobs.

No. 1 x 31. No. 22 x 31	
No. 1 x 31. Per dozen..	**List $2.60**
No. 22 x 31. Each.....	**" 1.00**

No. 150

For Doors from 600 to 1,000 lbs.
Takes No. 33 Track

Japanned; Extra Heavy Steel, Reinforced Truck; Extra Heavy Malleable Iron Adjusting Bolt; Japanned Full Apron 12 x 4 x $\frac{3}{16}$ in. thick; Wheels 3 in. Diam.; Non-Flexible Joint; Adjustable both laterally and vertically. Roller Bearings.

Apron adjusts to fit Doors 2 to 3½ ins.

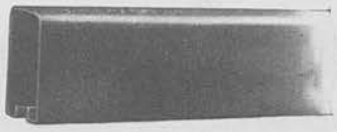
No. 150—per Pair **$11.00**

One pair in Box, complete with Bolts and Two Blinds to convert Centre Track Brackets to End Brackets; Weight 24 lbs. Pair.

No. 33 Track, 13 ga., 3 x 3½ in. Weight 4 lbs.
Lock Joint, per foot ..... **$ .90**
No. 1 x 33 Single Brackets, each ..... **$ .90**

STANLEY

BARN DOOR TRACK



"Hatch" Trolley Track

4-6-8 and 10-Ft. Lengths.

A sturdy duty track of 16-gauge steel; will safely carry doors up to 350 pounds in weight with brackets spaced on 2 in. centres; japanned finish; 174 lbs. per 100 ft.

"Hatch". Per 100 feet list..... ..**$24.00**

Premier Flat Track

Wrought Steel.

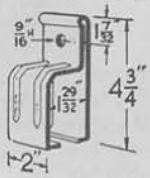
4-6-8 and 10-Ft. Lengths.

Will accommodate any flat track hanger; japanned finish; 1¼x3/16 ins.; with bracing lug and double riveted brackets 12 ins. apart.

"Premier" Flat Track:

Per 100 feet list..... ...**$15.00**

BARN DOOR BRACKETS



"Hatch" Brackets

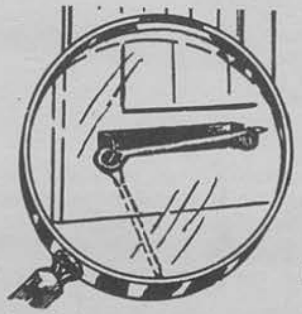
Japanned, all steel, self-tightening, single centre bracket; corrugated for extra strength; for trolley track.

"Hatch". Dozen list Single.....**$ 2.50**

"Hatch" Double: not corrugated

Dozen list **$11.90**

GARAGE DOOR DOGS



No. 99

Heavy pressed steel; japanned finish; simple and strong; holds door against the wind; 5x1¼ ins. door strap; 9 ins. heavy spike.

No. 99. Dozen list.....**$ 3.80**

1 dozen in a box, with screws.

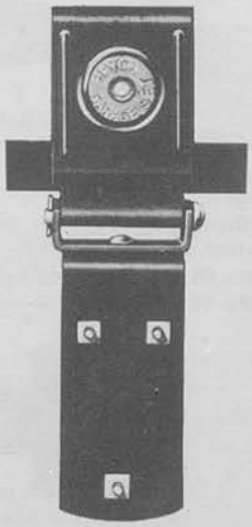
SLIDING DOOR HANGERS

For Barn, Warehouse and Garage Doors

91-J TROLLEY HANGER

For Light Doors up to 1¾ Ins. in Thickness.

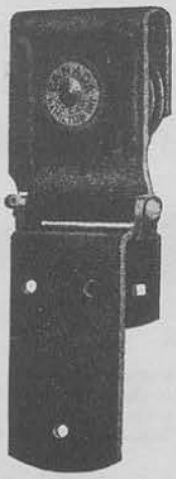
Swivel Door-Hangers. for Flat Track.



SWIVEL HANGERS

91-J Dozen pairs list.....**$18.00**

1 pair in a box.



"CANADA"

For Doors 1¾ to 2 Ins. Up to 250 Lbs.

Medium weight, simple and sturdy construction; flexible feature permits door to swing out at the bottom. Japanned finish; with galvanized bolts. Long apron 6x3 ins. Short apron 2¾x3 ins. For doors up to 1¾ ins. thick and up to 250 pounds in weight.

"CANADA"

Dozen pairs list ..**$21.00**

1 pair in a box.

"AMERICA" BARN DOOR HANGER

Trolley Hanger

Roller Bearing

Swing-Out Hanger

Japanned steel pendant 3x6 ins.; 4-wheel truck with 2 in. wheels; anti-friction steel yolks; each pair of hangers includes 2 end caps, bolts for hanger and large lag screws for brackets; 1 pair in a carton.

"America". Dozen pairs list.....**$28.80**

R-W HEAVY DUTY HINGES

NO. 03 x 0 HINGES

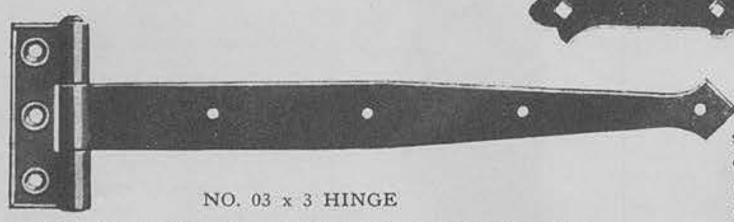
No. 03 x 0 is often used for hanging swing doors. The pintle is narrow, (2¼ x 4½)—an advantage, for it allows a narrow jamb. These hinges are packed one pair in a box with screws. Twelve pairs packed in a crate. Pintle malleable, strap steel, ¼ x 2-inch. Pin ⅜-inch.

No. 03 x 0 Hinges—12 inches	Per dozen Pr....	**List $24.00**
No. 03 x 0 Hinges—16 inches	Per dozen Pr.... "	**26.40**

No. 734 HINGE

No. 734 is a new type of hinge with two uses. Can be used offset as shown to throw door clear of opening or as mortise pintle hinge. Strap is ¼" x 2". Made in three sizes—8", 10", 12". Packed one pair in a box complete with bolts (for 1¾" doors) and screws.

No. 734 x 8-inch Hinges	Per Doz. Pr.	**List $15.60**
No. 734 x 10-inch Hinges	Per Doz. Pr. "	**17.40**
No. 734 x 12-inch Hinges	Per Doz. Pr. "	**19.20**



NO. 03 x 3 HINGE

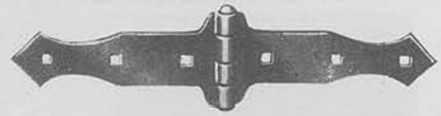
The 03 x 3 Hinge is recommended on account of the wide bearing secured by three screw holes in the pintle. Pintle, malleable, is 7 inches high; 2¼ inches wide, measuring from centre of eye. Hinge strap is made of steel 5/16-inch thick by 2½ inches wide. Pin, ½-inch.

No. 03 x 3 Hinges—18 inches	Per Pair..........	**List $4.20**
No. 03 x 3 Hinges—24 inches	Per Pair.......... "	**4.60**
No. 03 x 3 Hinges—30 inches	Per Pair.......... "	**4.90**
No. 03 x 3 Hinges—36 inches	Per Pair.......... "	**5.30**
No. 03 x 3 Hinges—42 inches	Per Pair.......... "	**5.60**
No. 03 x 3 Hinges—48 inches	Per Pair.......... "	**6.00**

NO. 03 x 5 HINGE

No. 03 x 5 is all steel, an offset hinge for "Slidetite" up to five door sets. Packed one pair in a box with screws and twelve pairs in a crate. Strap, ¼ x 2. Pintle, front 4¼ x 4½; side, 1⅝ x 4¼. Pin, ⅜-inch. Pintle laps around corner of jamb. (Offset, 4 inches).

No. 03 x 5 Hinges—12 inches	Per Pair.....	**List $2.60**
No. 03 x 5 Hinges—15 inches	Per Pair..... "	**2.80**
No. 03 x 5 Hinges—18 inches	Per Pair..... "	**.3.00**



NO. 03 x 8 SURFACE HINGES

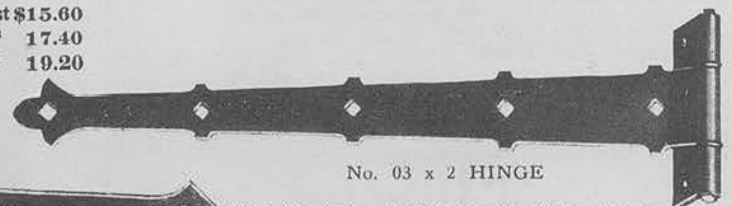
No. 03 x 8 is an attractive ornamental hinge used with "Slidetite" sets. The straps are made of malleable iron, measuring 2 inches wide and 8 inches each way from the pin. Pin ⅜-inch.

No. 03 x 8 Hinges	Per Doz. Pair....	**List $30.00**

No. 03 x 1 HINGE

No. 03 x 1 has a mortise pintle. It is especially suitable for hanging garage doors where it is desirable to mortise the pintle in the jamb. The pintle is steel, 6 inches high; 2¾ inches wide; measuring from centre of eye. Hinge strap steel, 3-16-inch thick by 2½ inches. Pin ⅜-inch.

No. 03 x 1 Hinges—12 inches	Per Doz. Pair......	**List $26.40**
No. 03 x 1 Hinges—16 inches	Per Doz. Pair...... "	**28.80**
No. 03 x 1 Hinges—24 inches	Per Doz. Pair ..... "	**33.60**



No. 03 x 2 HINGE

The No. 03 x 2 Ornamental Hinge makes a striking installation for swing doors. It is out of the ordinary. Made in two sizes, mortise pintle, steel, 6 inches high; 2¾ inches wide measuring from centre of eye. Hinge strap steel, 5/16 inch thick. Pin, ⅜-inch.

No. 03 x 2 Hinges—18 inches.	Per Pr...	**List $3.20**
No. 03 x 2 Hinges—24 inches.	Per Pr... "	**3.60**
No. 03 x 2 Hinges—30 inches.	Per Pr.... "	**4.00**
No. 03 x 2 Hinges—34 inches.	Per Pr.... "	**4.40**

NO. 03 x 11 HINGE

A very strong and stylish hinge, especially good for garage work; 18-inch and 24-inch straps, made of ¼-inch steel, 2½ inches wide. Furnished with an adjustable clip which can be bolted to the door near the edge regardless of the distance the pintle is set from the jamb. Pintle is 2½ inches wide. Pin, ½-inch.

No. 03 x 11 Hinge—18 inches	Per Pr...........	**List $4.40**
No. 03 x 11 Hinge—24 inches	Per Pr........... "	**5.30**
No. 03 x 11 Hinge—30 inches	Per Pr........... "	**6.10**
No. 03 x 11 Hinge—36 inches	Per Pr........... "	**7.00**

No. 88 and 89 Adjustable Door Binders

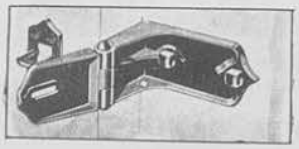
No. 89

No. 89. Adjustable for doors 1¾ to 3 inches thick. Brace is pivoted, allowing first lag screw to be inserted easily. End is flared to receive the door readily. May be used at front or back of door. Should be attached with $\frac{7}{16}$ inch lag screws or bolts. Finish, japan. Packed in bulk. Weight, per dozen, 19 pounds.

No. 88 Door Binder is made only for doors 1¾ inches thick. Non-adjustable. Other details. same as No. 89. Weight, per dozen, 15½ pounds.

No. 88

Price	List
No. 88 Binder, per dozen	$4 40
No. 89 Adjustable Door Binder and Stop, per dozen	5 00



No. 182 Hasp and Binder

A combination of door bumper, binder and hinged hasp, malleable throughout. Length of wall plate, 7⅛ inches. Hinged leaf, overlapping door, 5 inches long. Weight, four pounds.

	List
No. 182 x 2 Binders, for doors approx. 1¾ to 2¼" thick, each	$2 20
No. 182 x 3 Binders, for doors approx. 3 " thick, each	2 50

No. 118 "Sure Grip" Door Holder

For Floor Attachment

Holders made of malleable iron and door clips of spring bronze metal. Packed one dozen in metal edge box. Complete with all screws finished to match holder. Weight, per dozen, 4 pounds.

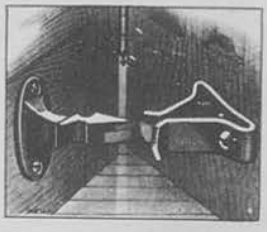
No. 118

Prices	List
No. 118 Door Holder, japanned, per dozen	$5 00
No. 118 Door Holder, bronze plated, per dozen	9 40

No. 119 "Sure Grip" Door Holder

For Wall Attachment

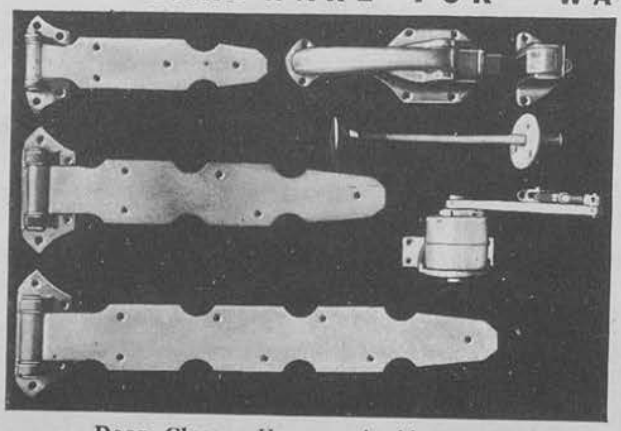
Holders made of malleable iron and door clips of spring bronze metal. Packed, one dozen in metal-edged box. Complete with all screws finished to match holder. Weight, per dozen, 3⅜ pounds.



No. 119

Prices	List
No. 119 Door Holder, japanned, per dozen	$5 00
No. 119 Door Holder, bronze plated, per dozen	9 40

HARDWARE FOR "WALK-IN" REFRIGERATORS



Door Closer—Has no checking mechanism—slams the door **shut.** Easy to instal. Finished in aluminum to match the cadmium plated hardware.

No. 613—Each.....**List $9 00**

LATCHES

No. 124 — Length over-all 14"; weight 12 lbs. Thoroughly cadmium plated. Packed one in a carton complete with screws and plunger.
Each.....**List $10 40**

No. 123 — Length over-all 9". Same design as No. 124 but smaller. Complete with screws and plunger.
Each.....**List $6 75**

HINGES

No. 03R—3 sizes. Steel straps, malleable pintles. Case hardened wearing washers. Rivetted pins are standard. Loose pins can be supplied if ordered. Regular offsets as shown below, but can be supplied with other offsets if ordered. Packed one pair in a carton with screws.

		Offset	Size of Strap	Pin	Per pr. List
No. 03Rx	12"	1⅛"	2¾x3/16"	⅜"	$4 20
	18"	1 5/16"	3½"x3/16"	½"	6 30
	24"	1 5/16"	3½x3/16"	½"	7 60

Hardware for "Walk-in" Refrigerators available in Bright Chromium.

Barrett SHINGLES

RIGHT ON TOP!

For the roof it is good policy to recommend, sell and use the best. **BARRETT ROOFING MATERALS** are the result of 84 years experience in manufacture and application. Constant vigilant inspection and exacting specifications assure unfailing standards of performance.

BARRETT - The Greatest Name in Roofing

CLASS "A" PRODUCTS (Asphalt Shingles and Sidings)

A-A. MASSIVE HEAVY TAB SHINGLES (3 in 1 strips)—Hand-made.

Per square 340 lbs.—3 bundles—81 shingles... **$12.81**
Colours—Made to order (ask for colour chart).

A-K. GIANT HEAVY TAB SHINGLES (3 in 1 strips)—Hand-made.

Per square 300 lbs.—3 bundles—81 shingles... **$11.44**
Colours—Made to order (ask for colour chart).

A-L. SPECIAL HEAVY TAB SHINGLES (3 in 1 strips)

Per square 240 lbs.—2 bundles—80 shingles.... **$8.56**
Colours—Nos. 4-5-9-10-11-12-13-14—(ask for colour chart).

A-M. STANDARD HEAVY TAB SHINGLES (3 in 1 strips)

Per square 200 lbs.—2 bundles—20 shingles... **$7.69**
Colours Nos. 1-2-3-4-5-9-10-11-13-14—(ask for colour chart).

A-D. GIANT SHINGLES (3 in 1 strips)

Per square—240 lbs.—2 bundles—80 shingles... **$8.75**
Colours Nos. 1-2-3-4-5-9-10-11-12-13—(ask for colour chart).

A-E. MULTI SHINGLES (4 in 1 strips)

Per square 210 lbs.—2 bundles—100 shingles... **$7.69**
Colours Nos. 1-2-3-4-5-9-10-13—(ask for colour chart).

A-N. BROAD SHADOW DUBLECOTE SHINGLES—(2 in 1 strip)

Per square 240 lbs.—3 bundles—100 shingles... **$.38**
Colours Nos. 3-9-14-18 (ask for colour chart).

A-F. BROAD SHADOW SHAD-O BAND SHINGLES—(2 in 1 strips)

Per square 190 lbs.—2 bundles—100 shingles... **$7.06**
Colours Nos. 3-4-14-15-17-18-19-20—(ask for colour chart).

A-G. HEXAGON SHINGLES—(2 in 1 strips)

Per square 165 lbs.—2 bundles—86 shingles.... **$6.44**
Colours Nos. 1-2-3-4-5-15-18 (ask for colour chart).

A-S. STORMTITE SHINGLES (Individual 16"x16")

Per square 125 lbs.—2 bundles—80 shingles.... **$4.69**
Colours Nos. 3-4-5-9-10 (ask for colour chart).

A-H. BRICK TYPE SIDING (4 bricks per strip)

Per square 200 lbs.—2 bundles—134 strips.... **$7.75**
Colours Nos. 6-7-16 (ask for colour chart).

A-V. JUMBO SIDING (2 slabs per strip)

Per square 130 lbs.—1 bundle—28 strips....On Appl'n
Colours Nos. 2-8 (ask for colour chart).

A-X. HIP AND VALLEY SHINGLES (Individual 8" x 10½")

Per square 210 lbs.—4 bundles—450 shingles... **$7.69**
Colours Nos. 3-4-5-9-10 (ask for colour chart).

Color Specifications

1—Standard Red.
2—Standard Green.
3—Spanish Red.
4—Clover Green.
5—Blue Black.
6—Buff.
7—Brick Red.
8—Aluminum.
9—Red Tone, (Square Tab)
10—Forest Green Tone (Square Tab)
11—Copper Tone (Square Tab)
12—Heather Tone (Square Tab)
13—Multi Tone.
14—Gray Stone.
15—Variegated.
16—Varitone.
17—Red Tone (Two Tab).
18—Forest Green Tone. (Two Tabs).
19—Copper Tone (Two Tab).
20—Heather Tone (Two Tab).

CLASS "B" PRODUCTS - ROLL ROOFINGS

B-A. EVERLASTIC MINERAL SURFACED

Roll—36" wide—108 sq. ft.—weight 90 lbs. per square..... **$3.67**
Colours Nos. 1-2-3-4-5—(See Colour Chart).

B-B. EVERLASTIC MINERAL SURFACED

Roll—18" wide—58 sq. ft.—weight 47½ lbs. Per sq. **$4.00**
Colours Nos. 1-2-3-4-5—(See Colour Chart).

B-H. MAPLE LEAF MINERAL SURFACED

Roll—36" wide—108 sq. ft.—weight 60 lbs. per roll **$2.61**

B-F. STARTER STRIP

Roll—12" wide—50 feet in length—weight 414 lbs.
Per roll **$1.73**

B-C. EVERLASTIC SMOOTH SURFACED

Roll—36" wide—108 square feet—weight

Light Weight	35 lbs. per roll.....		**$2.03**
Medium Weight	45 lbs. " "		**2.41**
Heavy Weight	55 lbs. " "		**2.87**
Extra Heavy "	65 lbs. " "		**3.33**

B-E. TOMAHAWK—SMOOTH SURFACED

Roll—36" wide—108 square feet—weight

Light Weight	35 lbs. per roll.....		**$1.76**
Medium Weight	45 lbs. " "		**2.08**
Heavy Weight	55 lbs. " "		**2.48**
Extra Heavy "	65 lbs. " "		**2.87**
Super Heavy "	75 lbs. " "		**3.33**

C-B. ANCHOR DRY

Roll 32" wide—400 square feet—weight 15 lbs.
Per roll ..... **$ .63**

C-C. STAG DRY

Roll 32" wide—400 square feet—weight 15 lbs.
Per roll ..... **$ .97**

C-D. SCYTHE HEAVY DRY

Roll 32" wide—400 square feet—weight 38 lbs.
Per roll **$1.67**

C-E. ANCHOR CARPET FELT—16 oz.

Per roll **$3.35**

C-A. ANCHOR CARPET FELT—24 oz.

Roll 36" wide—approx. 50 sq. yards—weight 75 lbs.
Per roll **$5.03**

C-G. ANCHOR TARRED

Roll 32" wide—400 square feet—weight 25 lbs.
Per roll **$1.13**

C-H. LIGHT ASPHALT

Roll 36" wide—400 square feet—weight 25 lbs.
Per roll **$1.13**

C-J. RED STAR HEAVY TARRED

Roll 32" wide—400 square feet—weight 50 lbs.
Per roll **$2.20**

C-N. ASPHALT KRAFT

Roll 36" wide—400 square feet—weight 25 lbs.
Per roll **$2.13**

C-K. BLACK KNIGHT INSULATING PAPER

Roll 36" wide—500 square feet—weight 45 lbs.
Per roll **$4.40**

C-L. BARRETT SPECIAL HOUSE

Roll 36" wide—200 square feet—weight 30 lbs.
Per roll **$1.83**

C-M. EVERLASTIC FIBRE KRAFT

(F.O.B. Montreal or Toronto only).
Roll 36" wide—500 square feet—weight 25 lbs.
Per roll **$4.43**

BUILT-UP ROOFING MATERIALS

Class "D" Products

D-P. BLACK DIAMOND TARRED FELT

Roll 32" wide—432 sq. ft.—weight 65 lbs.
Per roll **$3.32**

D-B. RED STAR BRAND TARRED FELT (7 oz.)

Roll 32" wide—400 sq. ft.—weight 50 lbs.
Per roll..... **$2.57**

D-C. BISON BRAND TARRED FELT—(10 oz.)

Roll 32" wide—300 sq ft. weight 45 lbs. Per roll **$2.31**

D-D. BUCK BRAND TARRED FELT—(16 oz.)

Roll 32" wide—200 sq. ft. weight 45 lbs. Per roll **$2.57**

D-E. BARRETT ASPHALT FELT

Roll 36" wide—10 lb. 432 sq. ft.—weight 44 lbs.
Per roll **$2.25**

D-E. BARRETT ASPHALT FELT

Roll 36" wide—15 lb. 432 sq. ft.—weight 65 lbs.
Per roll **$3.32**
Roll 36" wide—30 lbs. 216 sq. ft.—weight 65 lbs.
Per roll **$3.32**

D-F. S.I.S.—IMPROVED 17" Selvage

Roll 32" wide—Half sq.—Weight 59 lbs. Per roll **$2.57**

D-J. BLACK DIAMOND PITCH

Barrels—weight 350 to 400 lbs. Per 100 lbs.... **$2.24**

D-K. REFINED COAL TAR

Barrels—weight 550 lbs. Per roll barrel..... **$13.33**

D-L. CRUDE COAL TAR

Barrels—Weight 550 lbs. Per bbl..... **$12.00**

D-M. ANCHOR ASPHALT

Drums—weight 500 lbs. Per 100 lbs....On application

D-N. CRYSTAL ASPHALT

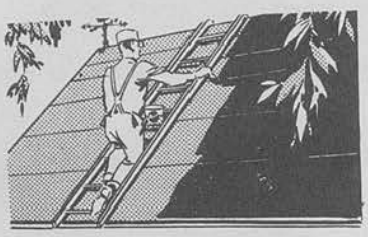
Drums—weight 500 lbs. Per 100 lbs..... **$2.24**

D-O. CRYSTAL COATING AND PRIMER

Barrels—weight 500 lbs. Per Gal..... **$ .83**

PROTECTIVE PRODUCTS

CLASS "E" PRODUCTS



Adding Years of Life to Old Roofs

Barrett Plastic ELASTIGUM

Get Ahead of Leaks

E-A. CARBOSOTA (Refined Creosote Oil)

44 gal. steel bbls. weight 530 lbs. Per Gal..... $ .80
25 gal. steel half bbl. weight 315 lbs. Per Gal... $ .87
5 gal. cans weight 61 lbs. Per Gal..... $ .93

E-B. VELVEX CREOSOTE SHINGLE STAIN

(B3 & B9—Brown)

44 gal. steel bbls. weight 540 lbs. Per Gal..... $ .93
25 gal. steel half bbls. weight 315 lbs. Per Gal. $1.00
5 gal. cans weight 56 lbs. Per Gal..... $1.07
1 gal. cans (6 to case) weight 70 lbs. Per Gal... $1.27

(B12—Red)

44 gal. steel bbls. weight 540 lbs. Per Gal..... $1.20
25 gal. steel half bbls. weight 315 lbs. Per Gal... $1.27
5 gal. cans weight 56 lbs. Per Gal..... $1.33
1 gal. cans (6 to case) weight 70 lbs. Per Case $9.20

(C43 & 44—Green)

44 gal. steel bbls. weight 540 lbs. Per Gal..... $1.40
25 gal. steel half bbls. weight 315 lbs. Per Gal. $1.47
5 gal. cans weight 56 lbs. Per Gal..... $1.53
1 gal. cans (6 to case) weight 70 lbs. Per Case $10.40

E-C. LIQUID ELASTIGUM

44 gal. steel bbls. weight 510 lbs. Per Gal..... $ .93
27 gal. steel half bbls. weight 340 lbs. Per Gal. $1.00
5 gal. cans weight 54 lbs. Per Gal..... $1.07
1 gal. cans (6 to case) weight 70 lbs. Per Case.. $7.60

E-D. PLASTIC ELASTIGUM

Wood bbls. weight 500 lbs. Per 100 lbs..... $7.67
Wood half bbls. weight 300 lbs. Per 100 lbs.... $8.33
100 lbs. steel containers, weight 110 lbs.
Per 100 lbs. $9.00
25 lb. steel pails, weight 32 lbs. Per 100 lbs.... $10.67
10 lb. cans (6 to case) weight 70 lbs. Per case.. $8.00
1 lb. cans (24 to case) weight 32 lbs. Per case.. $4.80

E-E. EVERLASTIC ROOFING CEMENT

48 gal. steel bbls. weight 610 lbs. Per Gal..... $ .80
25 gal. steel half bbls. weight 350 lbs. Per Gal... $ .87
5 gal. cans weight 60 lbs. Per Gal..... $ .93
1 gal. cans (6 to case) weight 76 lbs. Per Case $7.20
1 pint cans (24 to case) weight 30 lbs. Per case $4.33

E-F. BARRETT ROOF COATING

45 gal. steel bbls. weight 570 lbs. Per Gal..... $ .60
25 gal. steel half bbls. weight 335 lbs. Per Gal... $ .67
5 gal. cans weight 64 lbs. Per Gal..... $ .73
1 gal. cans (6 to case) weight 76 lbs. Per Case $4.80

E-G. EVERJET PAINT Black Metal Paint

45 gal. steel bbls. weight 545 lbs. Per Gal..... $1.13
27 gal. steel half bbls. weight 310 lbs. Per Gal... $1.20
5 gal. cans weight 60 lbs. Per Gal..... $1.27
1 gal. cans (6 to case) weight 73 lbs. Per Case.. $9.20

E. H. EVERJET THINNER

45 gal. steel bbls. weight 520 lbs. Per Gal.... $ 1.27
27 gal. steel half bbls. weight 520 lbs. Per Gal. $ 1.33
6 gal. cans weight 60 lbs. Per Gal..... $ 1.40
1 gal. cans (6 to case) weight 69 lbs. Per Case $10.00

E-J. "CREONOID" Tax Exempt

45 gal. steel bbls. weight 520 lbs. Per Gal..... $ .80
27 gal. steel half bbls. weight 222 lbs. Per Gal. $ .87
5 gal. cans weight 55 lbs. Per Gal..... $ .93
1 gal. cans (6 to case) weight 70 lbs. Per Case $ 6.40
½ gal. cans (12 to case) weight 71 lbs. Per Case $ 8.00

E-K. "CARBONOL" Disinfectant

43 gal. steel bbls. weight 490 lbs. Per Gal..... $ .93
25 gal. steel half bbls. weight 290 lbs. Per Gal. $ 1.00
5 gal. cans weight 59 lbs. Per Gal..... $ 1.07
1 gal. cans (6 to case) weight 74 lbs. Per Case $ 8.00

E-N. PLASTIC FLEXIGUM

Wood bbls. weight 500 lbs. Per 100 lbs..... $ 5.67
Wood half bbls. weight 300 lbs. Per 100 lbs... $ 6.00
100 lb. steel containers weight 115 lbs.
Per 100 lbs. ..... $ 6.33
25 lb. steel pails weight 30 lbs. Per 100 lbs... $ 7.73
5 lb. cans (12 to case) weight 72 lbs. Per Case $ 7.20
2 lb. cans (12 to case) weight 30 lbs. Per Case $ 4.00

E-O. LIQUID FLEXIGUM

44 gal. steel bbls. weight 510 lbs. Per Gal.... $ .67
27 gal. steel half bbls. weight 340 lbs. Per Gal. $ .73
5 gal. cans weight 54 lbs. Per Gal..... $ .80
1 gal. cans (6 to case) weight 70 lbs. Per Case $ 5.60

E-P. HYDRONON PAINT DAMP-ROOFING PAINT

45 gal. steel bbls. weight 545 lbs. Per Gal.... $ 1.04
27 gal. steel half bbls. weight 310 lbs. Per Gal. $ 1.10
5 gal. cans weight 60 lbs. Per Gal..... $ 1.16

E-R. EBONINE PAINT UTILITY BLACK PAINT

45 gal. steel bbls. weight 545 lbs. Per Gal.... $ .60
27 gal. steel half bbls. weight 310 lbs. Per Gal. $ .67
5 gal. cans weight 60 lbs. Per Gal..... $ .73
1 gal. cans (6 to case) weight 73 lbs. Per Case $ 5.20

E-W. S.I.S. ROOFING CEMENT

45 gal. steel bbls. weight 545 lbs. Per Gal... $ .63
27 gal. steel half bbls. weight 310 lbs. Per Gal. $ .72
5 gal. cans weight 60 lbs. Per Gal..... $ .80

Elastica

QUALITY PAINT PRODUCTS

Endorsed by "Men Who Know" for over 30 years

For every paint need there is an Elastica Quality Paint Product, specially developed to do a specific job:—

Elastica Prepared House Paint—Porch Floor Enamels—Concrete Finish — Shingle Stains — Barn, Bridge and Roof Paints—Floor Finishes—Varnishes and Varnish Stains—Primers—Marine Paints and Varnishes—Kwickwork Rubber Enamel—Softone Semi-Gloss Interior Finish—Flattine Interior Wall Finish — Glassite Clear Finish.

● "The **best** paint is the **cheapest** paint you can buy." That is what Master painters, architects, decorators—"men who know"—will tell you when it comes to giving your property adequate protection and real beauty. They'll tell you that cheap paints are poor economy—they won't "stand up" to exposure—they crack, flake and retain dirt—soon look faded and inevitably prove to be the most expensive paint.

That's why it pays to use Elastica Paint Products—recognized for 30 years by "men who know" as the **finest** paints made, and hence the **cheapest.** Elastica Paints are produced to the highest standards of quality known to the industry. They are developed and tested in laboratories which are recognized as second to none on the Continent. When you buy Elastica Paints you can be confident that you are making a real investment—one that will pay you real dividends in greater protection, greater beauty over the years.

Elastica QUALITY PAINTS Smooth as Glass

INTERNATIONAL VARNISH COMPANY Limited

Halifax - Montreal - Toronto - Hamilton - Winnipeg - Calgary
Edmonton - Vancouver

Elastica

PREPARED HOUSE PAINT

For over 30 years scientifically made for performance

A combination of highest quality pigments, scientifically combined and ground in pure Linseed Oil. For rugged performance and exceptional durability, for greater coverage and beauty, for downright economy over the years—take the advice of experts—use Elastica House Paint. Made in 24 modern colors, black, outside white, inside white. Gallon covers 425 sq. ft. two coats.

Gallon	½ Gallon	Quart	Pint
$4.35	$2.35	$1.25	.70

Certain colors slightly higher in price. Ask for free color card.

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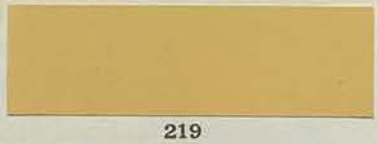
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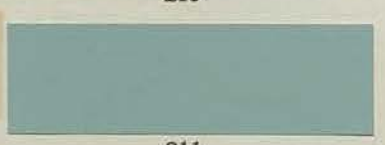
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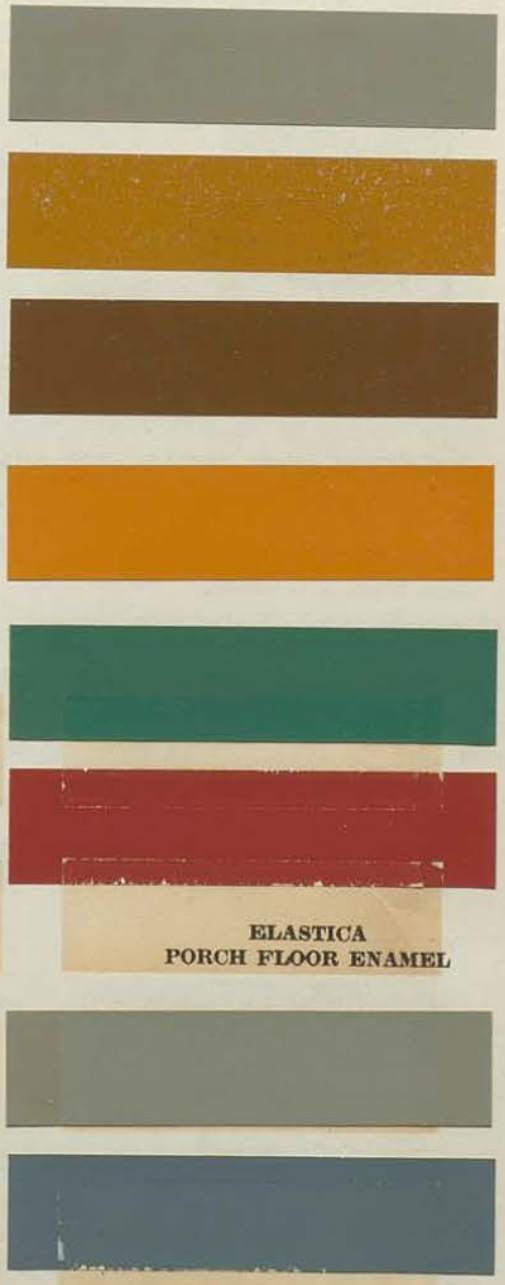
The Best Paints are the Elastica QUALITY PAINTS "Smooth as Glass" ***Cheapest In the Long Run***

Elastica PORCH and FLOOR ENAMELS

● The body of Elastica Porch and Floor Enamels is made from the highest grade of pigment and colors obtainable. The vehicle is entirely a varnish gum product which ensures extreme toughness and elasticity. Quick drying, with a hard, lustrous finish that will withstand the roughest kind of usage, weather, water and wear resisting. Elastica Floor Enamel is available in 11 smart colors. Color card on request.

ELASTICA PORCH FLOOR ENAMEL is specially prepared for the gruelling punishment which verandahs, porch floors and steps have to suffer. Extremely tough, wear and water resistant. Made in 4 shades of gray.

Gall. $4.85 **½ Gall. $2.60** **Quart $1.40** **Pint .80**



ELASTICA
PORCH FLOOR ENAMEL

Glassite The Enduring CLEAR FINISH

● Vastly superior to ordinary varnish, Glassite, a revolutionary clear finish, gives a superb glass like gloss that is extremely durable and hard wearing. Glassite resists hot liquids, acids, alcohol and all atmospheric conditions. Very economical too because of its exceptional coverage. Use Glassite on any surface interior or exterior, on floors, linoleums, doors, furniture, etc.

$6.50	$1.80	$1.00	.65
Gallon	Quart	Pint	½ Pint

The Best Paints are the Elastica QUALITY PAINTS *Smooth as Glass* ***Cheapest in the Long Run***

KwicKworK
RUBBER ENAMEL

● Scientifically formulated for better results and better performance on any surface—wood or metal—interior or exterior. The rubber that is incorporated in the formula gives sufficient elasticity to withstand the demands of our varied climate. Renowned for its rich, high lustre; porcelain-like smoothness; outstanding durability and one-coat coverage. Free-flowing, fast-drying, wear resisting and washable, Kwickwork is the perfect enamel for woodwork, furniture, boats, autos, machinery, etc. etc. Made in a superb range of 24 colors, also black and white.

Ask for free color card.

Gallon	$6.25	Pint	$1.00
½ Gallon	3.25	½ Pint	.60
Quart	1.75	¼ Pint	.35

KWICKWORK UNDERCOATER

To be used on new work where an exceptionally fine finish is required.

Gal. $4.55 ½ Gal. $2.45 Quart $1.30 Pint .75

SHELL PINK

SAND

IVORY

CANARY YELLOW

SKY BLUE

BURNT ORANGE

ORCHID

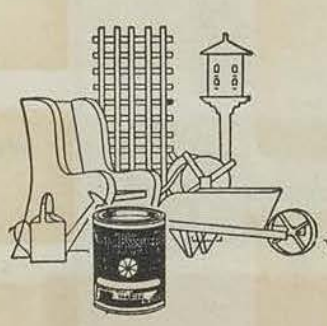
LETTUCE GREEN

STORM GREY

VERMILLION

GOLDEN BROWN

● Nothing beats Kwickwork for adding that gay touch of colour to kitchen tables, chests of drawers, sunroom furniture, etc. Easy to use it gives "professional results" and with surprising economy.



● Kwickwork is the perfect enamel for garden furniture, trellis, birdhouses—all those outside incidentals that look smart in colour. It is made for exceptional wear.

The Best Paints are the Elastica QUALITY PAINTS Smooth as Glass ***Cheapest In the Long Run***

Softone

SEMI GLOSS INTERIOR FINISH

A WASHABLE SATIN FINISH ENAMEL FOR WALLS, WOODWORK, FURNITURE

This very popular satin-finish enamel provides an ideal decorative medium for walls, woodwork, kitchen furniture, etc. Meeting the modern vogue for paint, it is easy to use and gives splendid results on all smooth surfaces. For bright, attractive sun-rooms, for bathrooms, Softone offers the ideal solution and comes in a range of delicate pastel colours. Softone is washable too—stains, grease and dirt are easily removed. And it is extremely hard wearing.

Available in twelve smart modern colours from which innumerable combinations can be made.

Gallon $5.50 ½ Gallon $2.85
Quart $1.50 Pint .85 ½ Pint .50

LIGHT IVORY BUFF

CAMEO PINK DALE GREEN

FLATTINE

INTERIOR WALL FINISH

AN OIL PAINT WITHOUT GLOSS FOR ALL INTERIOR DECORATION

A high-quality, washable flat finish, Flattine is particularly adaptable for use in the interior decoration of all classes of houses, churches, Assembly Halls, hospitals and public buildings. Flattine is exceedingly sanitary and easy to apply, and can be confidently recommended for a successful result on plaster, wood, metal, concrete, wallboard, burlap, window shades and practically any surface.

Gallon ..... $4.65 Quart $1.25
½ Gallon ..... 2.45 Pint ..... .70

INDIAN IVORY
KINGSTON BUFF
SAXON GREEN
POWDER BLUE

The Best Paints are the

Elastica QUALITY PAINTS Smooth as Glass

Cheapest In the Long Run

J. T. WING & COMPANY, LIMITED

Elastica QUALITY PAINT - AND - VARNISH PRODUCTS

ELASTICA WALL PRIMER AND SEALER

●A most effective primer and sealer for all types of plaster, brick and concrete interior walls, as well as most wall boards. Primes and seals walls against suction, enabling succeeding coats to cover properly and evenly, and with greater ease.

Gallon	½ Gallon	Quart
$3.90	**$2.00**	**$1.10**

ELASTICA CONCRETE FINISH

●Specially prepared for use on cement blocks, concrete, plaster, brick and stucco work. Elastica Concrete Finish is manufactured from the highest quality materials procurable, and in a range of desirable shades. If effectually waterproofs the surface to which it is applied and prevents decay of material caused by dampness. Covers approximately 300 square feet per gallon—one coat, depending on type of surface.

Gallon	½ Gallon	Quart
$4.45	**$2.30**	**$1.20**

ELASTICA SHINGLE STAIN

●A formula-prepared creosote stain for use in beautifying and preserving shingles, fences, and other rough outdoor surfaces. Economical in covering capacity—easy to apply.

Ordinary Colors **$2.00** Gal. Greens **$2.20** Gal.

ELASTICA BARN, BRIDGE, ROOF PAINT

●Especially prepared for use on barns, bridges, roofs, fences, silos, grain elevators and all types of out-buildings. An excellent preservative and protection against the ravages of exposure, will be found to give excellent results on all classes of structural iron work as well. One gallon covers approximately 500 square feet—two coats.

Red and Brown..	**$ .90 Qt.**	**$1.60 ½ Gal.**	**$3.00 Gal.**
Grey and Green..	**1.00**	**1.80**	**3.40**

LACQUERET VARNISH STAIN

●A combination of transparent stain and varnish for finishing or restoring in one operation, the surface of furniture, floors and all interior woodwork. When used on floors a finishing coat of Floor Varnish is recommended for greater durability.

Gall.	½ Gall.	Qt.	Pint	½ Pt.	¼ Pt.
$5.00	**$2.60**	**$1.35**	**$ .74**	**$ .43**	**$ .25**

ELASTICA METAL-COTE (Liquid)

●Specially formulated for use in painting all kinds of metal surfaces. Produces a very touch and elastic paint film, made to withstand the most severe exposure, heat and cold, snow, ice, rain, sun etc., also contraction and expansion. Elastica Metal-Cote is not affected by mineral oil, sulphur fumes or gasses.

All Colors.....	**$1.13** Qt.	**$2.19** ½ Gal.	**$4.16** Gal.
Primer Red	**1.19**	**2.28**	**4.36**
Galv. Iron Primer Ground	**1.13**	**2.19**	**4.16**
Black	**.91**	**1.73**	**3.25**

ELASTICA ALUMINUM PAINT

●This product is provided in double compartment containers (powder and liquid) from 1/64 to 1/4 gallon sizes. Larger quantities can be furnished with powder and liquid in separate containers to be mixed together when needed for use. Covers approximately 1,000 square feet—one coat, per gallon.

Gal.	½ Gal.	Qt.	Pint	½ Pint	¼ Pint
$6.24	**$3.23**	**$1.67**	**$ .88**	**$ .49**	**$ .30**

ELASTICA VARNISHES

●The quality of varnish is all-important. ELASTICA varnishes, backed by a reputation of over thirty years, are created for outstanding performance and durability, and can be depended upon for satisfactory results whenever used.

I. V. MARINE SPAR

●A very durable varnish for all marine uses such as the exterior of yachts, steamships and canoes, where great durability is required. It will withstand the action of fresh and salt water to a remarkable degree and possesses exceptional preservative quality.

Gallon **$5.53**

UTILITY SPAR

●A quick drying general purpose varnish for inside or outside use on floors, woodwork, baseboards, front doors, etc.

Gallon **$3.12**

ELASTICA FLOOR FINISH

●A perfect floor finish. It is tough, elastic and under footwear will not scratch or mar. It is also suitable for linoleum, oilcloth, etc. It will dry dust free in eight hours and can be walked on the next day.

Gallon **$5.53**

KWICK-SPAR

●An exceptionally good spar varnish. It is durable, elastic, heavy in body, but works easily. It is suitable for all kinds of boat or marine work.

Gallon **$6.20**

The Best Paints are the Elastica QUALITY PAINTS Smoother Glass ***Cheapest In the Long Run***

WHITE LEAD

A chemically pure white lead ground in Refined Linseed Oil. Packages bear the yellow label of the White Lead Association of Canada, guaranteeing purity of the contents.

DECORATOR'S SPECIAL WHITE LEAD IN OIL

The process to which this lead is subjected makes it particularly adapted for indoor use on account of its brilliant and enduring whiteness. Ground in pure linseed oil.

MAPLE LEAF SPECIAL WHITE LEAD IN OIL

White lead ground in Refined Linseed Oil and put up in a large variety of small packages.

Packages: 1, 2, and 5 pound tins; 12½, 25, 50 and 100 pound irons.

DRY RED LEAD

1 and 2 lb. Tins	
5 lb. Tins	
12½ lb. Tins	
25, 50 lb. Tins	
112–224 lb. Tins	
560 lb. Tins	

MORTAR STAIN (Dry)

These stains are smooth and possess strong coloring qualities.

In dry powder form.

- Black
- Extra Red (VV)
- Brown
- Buff

CANADIAN MAGNETIC IRON OXIDES, 90% PURE (Dry)

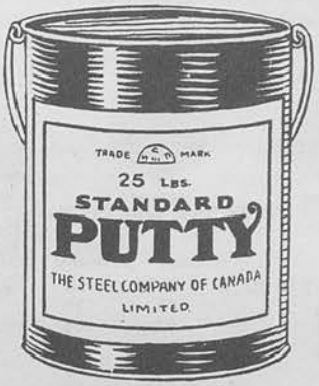
Venetian Red, Best Deep	Metallic Brown
Venetian Red, Best Bright	No. 1 Canadian Red
Venetian Red, No. 1	93V Red
Red Lead, Genuine	Super Magnetic (90% pure)
Red Lead No. 1	No. 11 Medium Oxide
Orange Mineral	Purple Medium Oxide

LAMP BLACK (EAGLE BRAND)

Germantown, in Bulk	
"	¼ lb.
"	½ lb.
"	1 lb.
"	Assorted, ¼, ½ and 1 lbs.

PUTTY

Standard putty ground in oil.



An excellent grade of Putty for general glazing purposes. Packages bear the guarantee label of the Canadian Putty Association.

PURE LINSEED OIL PUTTY

A guaranteed Pure Putty, ground in Pure Linseed Oil and suitable for the most exacting work. Packages bear the guarantee label of the Canadian Putty Association.

Packaged

Bulk in	400	pound steel drums.
"	100	" "
"	25	" irons or tins loose.
"	25	" tins boxed
"	12½	" irons or tins boxed.

Also put up in 1, 1½, 2 and 5 pound tins.

STEEL SASH PUTTY

A specially prepared Putty for Glazing Steel Sash. Supplied Natural or any Color.

Packaged

Bulk in	400	pound steel drums.
"	100	" " "
"	25	" irons.

LINSEED OIL

BOILED	RAW
Barrels, per gallon	Barrels, per gallon
Less than bbl., per gallon	Less than bbl., per gallon

TURPENTINE

Barrels, per gallon
Less than barrel per gallon

WHITING

Per Lb.

- **Common**—In barrels of 336 lbs.
- **Common**—Less than barrel lots
- **Gilders**—In barrels of 336 lbs.
- **Gilders**—Less than barrel lots
- **Paris**—In barrels of 336 lbs.
- **Paris**—Less than barrel lots

Brass and Commercial Bronze Rods and Shapes

Brown & Sharpe's Gauge the Standard
Brass and Commercial Bronze Rods
Size Extras

Round Hexagon Square

Extras Over Base, per Pound

Size Inches	Round	*Hexagon, Pentagon	Octagon, Square, Decagon	Rectangular, Oval, Half-Round
No. 11 (.0907) to 1/8	$.08	$.12	$.14	$.16
Incl. 1/8 to 1/4	.06	.10	.12	.14
Incl. 1/4 to 3/8	.03	.05	.05	.08
Incl. 3/8 to 5/8	.01	.02	.03	.06
Incl. 5/8 to 2	Base	.01	.02	.04
Incl. 2 to 3	.01 1/2	.02 1/2	.03 1/2	.05 1/2
Incl. 3 to 3 1/2	.03	.04	.05	.....
Incl. 3 1/2 and Over	.05	.06	.07	.....

Prices for rectangular, oval, half-oval or half-round rods are governed by the thinner dimension.

Rods cut to any random length shorter than 2-foot, or cut to exact lengths will be billed at an extra price.

*Hexagon and pentagon rods 3/8 inch and larger furnished in other than free cutting yellow brass alloys, 1 cent list advance.

Rectangular Brass Rod

Half Hard Temper
Mill Lengths 10 to 12 Ft.
Sold in Full or Cut Lengths

Size In.	Approx. Wt. Lbs. per Linear Ft.	Size In.	Approx. Wt. Lbs. per Linear Ft.	Size In.	Approx. Wt. Lbs. per Linear Ft.
1/16 x 3/8	.086	*3/16 x 1 3/4	1.209	5/16 x 3	3.454
1/16 x 1/2	.115	3/16 x 2	1.382	3/8 x 1/2	.691
1/16 x 5/8	.144	*3/16 x 2 1/4	1.555	*3/8 x 5/8	.863
1/16 x 3/4	.173	3/16 x 2 1/2	1.727	*3/8 x 11/16	.950
1/16 x 1	.230	3/16 x 3	2.072	3/8 x 3/4	1.036
1/16 x 1 1/2	.345	*1/4 x 3/8	.345	*3/8 x 7/8	1.209
1/16 x 1 3/4	.403	1/4 x 1/2	.461	3/8 x 1	1.382
1/16 x 2	.460	*1/4 x 5/8	.576	3/8 x 1 1/4	1.727
1/8 x 1/4	.115	*1/4 x 11/16	.634	3/8 x 1 1/2	2.072
1/8 x 1/2	.230	1/4 x 3/4	.691	*3/8 x 1 3/4	2.418
1/8 x 5/8	.287	*1/4 x 7/8	.806	3/8 x 2	2.763
1/8 x 3/4	.345	1/4 x 1	.921	3/8 x 2 1/2	3.450
1/8 x 7/8	.403	1/4 x 1 1/4	1.151	*3/8 x 3	4.140
1/8 x 1	.461	*1/4 x 1 3/8	1.266	3/8 x 4	5.530
1/8 x 1 1/4	.576	1/4 x 1 1/2	1.381	*1/2 x 3/4	1.382
1/8 x 1 1/2	.691	*1/4 x 1 5/8	1.497	1/2 x 1	1.842
1/8 x 1 3/4	.806	*1/4 x 1 3/4	1.612	1/2 x 1 1/4	2.303
1/8 x 2	.921	1/4 x 2	1.842	1/2 x 1 1/2	2.763
1/8 x 2 1/4	1.036	*1/4 x 2 1/4	2.072	1/2 x 2	3.680
1/8 x 2 1/2	1.151	1/4 x 2 1/2	2.302	1/2 x 2 1/2	4.610
1/8 x 3	1.382	1/4 x 3	2.763	1/2 x 3	5.530
3/16 x 5/16	.216	1/4 x 4	3.680	1/2 x 4	7.360
3/16 x 3/8	.259	*5/16 x 7/16	.504	5/8 x 1	2.302
3/16 x 1/2	.345	5/16 x 1/2	.576	5/8 x 1 1/2	3.452
3/16 x 9/16	.389	*5/16 x 9/16	.648	5/8 x 2	4.604
3/16 x 5/8	.432	*5/16 x 5/8	.720	5/8 x 2 1/2	5.756
3/16 x 3/4	.518	5/16 x 3/4	.864	3/4 x 1	2.764
3/16 x 7/8	.604	5/16 x 1	1.151	3/4 x 1 1/2	4.144
3/16 x 1	.691	5/16 x 1 1/4	1.439	3/4 x 2	5.528
3/16 x 1 1/8	.777	5/16 x 1 1/2	1.727	1 x 1 1/2	5.526
3/16 x 1 1/4	.863	5/16 x 2	2.303	1 x 2	7.360
3/16 x 1 1/2	1.036	5/16 x 2 1/2	2.878	1 x 3	11.060

Variations from these weights must be expected in practice.

Half Round Hard Drawn Brass Rods

Mill Lengths 10 to 12 Feet

Sold in Full or Cut Lengths

Size.....in.	1/2	3/4
Approx. Wt. per Linear Ft.....lbs.	.375	.812

Prices upon application.

Weights of Brass, Copper and Bronze Rods

Pounds per Linear Foot

Brass

Diam. In.	Weight, Pounds Round	Square	Hexagon	Diam. In.	Weight, Pounds Round	Square	Hexagon
1/16	.0113	.0144	.0125	15/16	4.991	6.355	5.503
1/8	.0453	.0576	.0499	1 3/8	5.478	6.974	6.040
3/16	.1019	.1297	.1123	1 7/16	5.987	7.623	6.602
1/4	.1811	.2306	.1997	1 1/2	6.519	8.300	7.188
5/16	.2829	.3602	.3120	1 9/16	7.073	9.006	7.800
3/8	.4074	.5188	.4493	1 5/8	7.651	9.741	8.436
7/16	.5546	.7061	.6115	1 11/16	8.250	10.50	9.097
1/2	.7243	.9222	.7987	1 3/4	8.873	11.30	9.784
9/16	.9167	1.167	1.011	1 13/16	9.518	12.12	10.50
5/8	1.132	1.441	1.248	1 7/8	10.19	12.97	11.23
11/16	1.369	1.744	1.510	1 15/16	10.88	13.85	11.99
3/4	1.630	2.075	1.797	2	11.59	14.76	12.78
13/16	1.913	2.435	2.109	2 1/8	13.08	16.66	14.43
7/8	2.218	2.824	2.446	2 1/4	14.67	18.68	16.17
15/16	2.546	3.242	2.808	2 3/8	16.34	20.81	18.02
1	2.897	3.689	3.195	2 1/2	18.11	23.06	19.97
1 1/16	3.271	4.164	3.607	2 5/8	19.96	25.42	22.01
1 1/8	3.667	4.669	4.043	2 3/4	21.91	27.90	24.16
1 3/16	4.086	5.202	4.505	2 7/8	23.95	30.49	26.41
1 1/4	4.527	5.764	4.992	3	26.08	33.20	28.75

Copper

Diam. In.	Weight, Pounds Round	Square	Hexagon	Diam. In.	Weight, Pounds Round	Square	Hexagon
1/16	.0118	.0151	.0131	1 11/16	8.630	10.99	9.515
1/8	.0474	.0603	.0522	1 3/4	9.281	11.82	10.23
3/16	.1065	.1356	.1175	1 13/16	9.955	12.68	10.98
1/4	.1894	.2412	.2088	1 7/8	10.65	13.56	11.75
5/16	.2959	.3768	.3263	1 15/16	11.38	14.48	12.54
3/8	.4261	.5426	.4699	2	12.12	15.43	13.37
7/16	.5800	.7386	.6396	2 1/8	13.68	17.42	15.09
1/2	.7576	.9646	.8354	2 1/4	15.34	19.53	16.92
9/16	.9588	1.221	1.057	2 3/8	17.09	21.76	18.85
5/8	1.184	1.507	1.305	2 1/2	18.94	24.12	20.88
11/16	1.432	1.824	1.579	2 5/8	20.88	26.59	23.02
3/4	1.705	2.170	1.880	2 3/4	22.92	29.18	25.27
13/16	2.001	2.547	2.206	2 7/8	25.05	31.89	27.62
7/8	2.320	2.954	2.558	3	27.27	34.73	30.07
15/16	2.663	3.391	2.937	3 1/4	32.01	40.75	35.29
1	3.030	3.858	3.341	3 1/2	37.12	47.27	40.93
1 1/16	3.421	4.356	3.772	3 3/4	42.61	54.26	46.99
1 1/8	3.835	4.883	4.229	4	48.49	61.73	53.46
1 3/16	4.273	5.441	4.712	4 1/4	54.74	69.69	60.36
1 1/4	4.735	6.029	5.221	4 1/2	61.37	78.13	67.67
1 5/16	5.220	6.647	5.756	4 3/4	68.37	87.06	75.39
1 3/8	5.729	7.295	6.317	5	75.76	96.46	83.54
1 7/16	6.262	7.973	6.905	5 1/4	83.53	106.3	92.10
1 1/2	6.818	8.681	7.518	5 1/2	91.67	116.7	101.1
1 9/16	7.398	9.420	8.158	5 3/4	100.2	127.6	110.5
1 5/8	8.002	10.19	8.824	6	109.1	138.9	120.3

Bronze

Diam. In.	Weight, Pounds Round	Square	Hexagon	Diam. In.	Weight, Pounds Round	Square	Hexagon
1/16	.0112	.0142	.0123	1 11/16	8.149	10.38	8.985
1/8	.0447	.0569	.0493	1 3/4	8.763	11.16	9.663
3/16	.1006	.1281	.1109	1 13/16	9.401	11.97	10.37
1/4	.1788	.2277	.1972	1 7/8	10.06	12.81	11.09
5/16	.2794	.3558	.3081	1 15/16	10.74	13.68	11.84
3/8	.4024	.5124	.4437	2	11.45	14.57	12.62
7/16	.5477	.6974	.6039	2 1/8	12.92	16.45	14.25
1/2	.7154	.9108	.7888	2 1/4	14.49	18.44	15.97
9/16	.9054	1.153	.9983	2 3/8	16.14	20.55	17.80
5/8	1.118	1.423	1.232	2 1/2	17.88	22.77	19.72
11/16	1.353	1.722	1.491	2 5/8	19.72	25.11	21.74
3/4	1.610	2.049	1.775	2 3/4	21.64	27.55	23.86
13/16	1.889	2.405	2.083	2 7/8	23.65	30.12	26.08
7/8	2.191	2.789	2.416	3	25.75	32.79	28.40
15/16	2.515	3.202	2.773	3 1/4	30.22	38.48	33.33
1	2.862	3.643	3.155	3 1/2	35.05	44.63	38.65
1 1/16	3.230	4.113	3.562	3 3/4	40.24	51.24	44.37
1 1/8	3.622	4.611	3.993	4	45.78	58.29	50.48
1 3/16	4.035	5.138	4.449	4 1/4	51.69	65.81	56.99
1 1/4	4.471	5.693	4.930	4 1/2	57.75	73.78	63.89
1 5/16	4.929	6.276	5.435	4 3/4	64.56	82.20	71.17
1 3/8	5.410	6.888	5.965	5	71.54	91.08	78.88
1 7/16	5.913	7.529	6.520	5 1/4	78.87	100.4	86.97
1 1/2	6.438	8.198	7.099	5 1/2	86.56	110.2	95.45
1 9/16	6.986	8.895	7.703	5 3/4	94.61	120.5	104.3
1 5/8	7.556	9 621	8.332	6	103.	131.2	113.6

Tobin Bronze Bolt and Stud Stock

Round

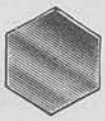
Mill Lengths 10 to 12 Feet
Sold in Full or Cut Lengths

This stock cannot be used for piston rods.

Diam. In.	Approx. Wt. Lbs. Linear Ft.	Diam. In.	Approx. Wt. Lbs. Linear Ft.	Diam. In.	Approx. Wt. Lbs. Linear Ft.
3/16	.100	3/4	1.612	15/16	4.936
1/4	.179	13/16	1.891	1 3/8	5.417
5/16	.280	7/8	2.194	1 1/2	6.447
3/8	.403	15/16	2.518	1 5/8	7.566
7/16	.548	1	2.865	1 11/16	8.159
1/2	.716	1 1/16	3.234	1 3/4	8.774
9/16	.906	1 1/8	3.626	1 7/8	10.070
5/8	1.119	1 3/16	4.040	2	11.460
11/16	1.354	1 1/4	4.477	.....	.....

Tobin Bronze Hexagon Bolt and Stud Stock

Mill Lengths 10 to 12 Ft.
Sold in Full or Cut Lengths

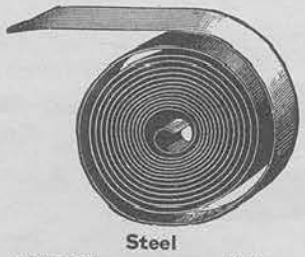


Diam. In.	Approx. Wt. Lbs. per Linear Ft.	Diam. In.	Approx. Wt. Lbs. per Linear Ft.
1/2	.7898	7/8	2.419
5/8	1.234	1	3.159
3/4	1.777	1 1/8	3.998

Prices on application.

Shim Stock

In Rolls 6 Inches Wide
Sold in Full or Cut Rolls



Steel

Thickness In.	Approx. Wt. Lbs., per Linear Ft.	Thickness In.	Approx. Wt. Lbs., per Linear Ft.
.002	.040	.008	.161
.003	.060	.010	.201
.004	.081	.014	.282
.005	.101	.020	.410
.006	.121	.025	.510

Spring Brass

.0015	.068	.005	.220
.002	.087	.006	.275
.003	.136	.008	.354
.004	.175	.010	.440

Prices upon application.

Coppered Bessemer Rods

6-Foot Lengths

Sold in Full Lengths Only

Diam.	Decimal In.	Approx. Wt. Lbs. per Linear Ft.	Diam.	Decimal In.	Approx. Wt. Lbs. per Linear Ft.
1/16	.0625	.010	3/16	.1875	.094
3/32	.0937	.024	7/32	.2187	.128
7/64	.1093	.032	1/4	.250	.167
1/8	.125	.042	5/16	.3125	.261
5/32	.1562	.065	3/8	.375	.375

Prices upon application.

Hard Drawn Copper Rod

Mill Lengths 10 to 12 Ft.
Sold in Full or Cut Lengths

Round

Size In.	Approx. Wt. Lbs. per Linear Ft.	Size In.	Approx. Wt. Lbs. per Linear Ft.	Size In.	Approx. Wt. Lbs. per Linear Ft.
1/8	.0474	5/8	1.185	1 3/4	9.294
3/16	.1067	*11/16	1.434	1 7/8	10.67
7/32	.1453	3/4	1.707	2	12.14
1/4	.1897	7/8	2.324	*2 1/8	13.70
9/32	.2401	15/16	2.667	2 1/4	15.36
5/16	.2964	1	3.035	*2 3/8	17.12
11/32	.3587	*1 1/16	3.426	2 1/2	18.97
3/8	.4268	1 1/8	3.841	*2 5/8	20.91
13/32	.5030	1 1/4	4.742	*2 3/4	22.95
7/16	.5809	*1 5/16	5.228	*2 7/8	25.08
15/32	.6698	1 3/8	5.738	*3	27.31
1/2	.7587	1 1/2	6.828	4	48.56
9/16	.9602	1 5/8	8.041	...	.....

Square

1/4	.2415	*7/8	2.958	*1 3/4	11.83
5/16	.3773	1	3.864	*1 7/8	13.58
3/8	.5434	*1 1/8	4.890	*2	15.46
7/16	.7396	*1 1/4	6.038	*2 1/4	19.56
1/2	.9660	*1 3/8	7.305	*2 1/2	24.15
9/16	1.223	1 1/2	8.694	*2 3/4	29.22
5/8	1.509	*1 5/8	10.20	*3	34.78
3/4	2.174	.....	.....	...	.....

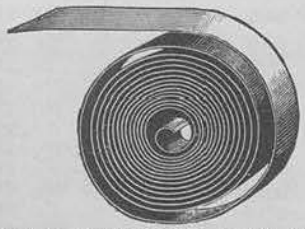
Hexagon

3/8	.4706	3/4	1.882	*1 5/8	8.836
7/16	.6405	7/8	2.562	*1 3/4	10.25
1/2	.8366	1	3.346	*2	13.39
9/16	1.059	*1 1/8	4.235	*2 1/4	16.94
5/8	1.307	*1 1/4	5.229	*2 1/2	20.91
11/16	1.582	*1 1/2	7.529	*2 3/4	25.31

Variations from these weights must be expected in practice.
Prices upon application.

Feeler Stock

In Coils



Carried in stock in 1/2-inch width, in the following thicknesses:

.0015 inch	.005 inch	.010 inch
.002 inch	.006 inch	.012 inch
.003 inch	.007 inch	.015 inch
.004 inch	.008 inch	.....

Prices upon application.

2 S Hard Aluminum Tubing

Mill Lengths 10 to 12 Ft.

Sold in Full or Cut Lengths

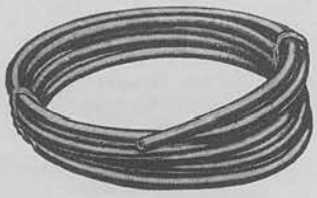
O.D. In.	Stubbs Gage	Wall Thickness Decimal In.	Wt. Lbs. per Linear Ft.	O.D. In.	Stubbs Gage	Wall Thickness Decimal In.	Wt. Lbs. per Linear Ft.
1/4	20	.035	.03	3/4	20	.035	.096
5/16	20	.035	.034	7/8	20	.035	.11
3/8	20	.035	.046	1	16	.065	.230
1/2	20	.035	.063	1	20	.035	.130
5/8	16	.065	.14	1 1/4	16	.065	.30
5/8	20	.035	.075	1 1/2	16	.065	.36
3/4	16	.065	.17	...	..	....	....

Prices upon application.

Annealed Flexible Copper Tubing

In Coils

Sold in Full or Cut Coils



O.D. In.	Stubbs Gage	Wall Thickness In.	Approx. Wt. Lbs. per Linear Ft.
1/8	21	.032	.036
3/16	21	.032	.061
1/4	21	.032	.085
5/16	21	.032	.109
3/8	21	.032	.134
7/16	21	.032	.158
1/2	21	.032	.182
1/2	16	.065	.344
5/8	16	.065	.443
3/4	16	.065	.542

Variations from these weights must be expected in practice.

Prices upon application.

Phosphor-Bronze Wire

Special tempers of wire for many applications made to order. Mention temper or purpose for which wire is to be used. Spring and armature binding tempers in stock.

Brown & Sharpe gauge is standard; all orders will be filled in this gauge unless otherwise specified.

Wire between gauges takes price of next thinner gauge.

Net Extra over Base Prices

Size	Diam. In.	Per Lb.	Size	Diam. In.	Per Lb.
No. 4 & heavier	.2043	Base	No. 21	.0284	$.14
No. 5	.1819	$.050	No. 22	.0253	.16
No. 6	.1620	.01	No. 23	.0225	.18
No. 7	.1443	.150	No. 24	.0201	.20
No. 8	.1285	.02	No. 25	.0179	.23
No. 9	.1144	.04	No. 26	.0159	.26
No. 10	.1019	.04	No. 27	.0142	.29
No. 11	.0907	.04	No. 28	.0126	.32
No. 12	.0808	.05	No. 29	.0112	.35
No. 13	.0719	.05	No. 30	.0100	.38
No. 14	.0640	.05	No. 31	.0089	.41
No. 15	.0570	.06	No. 32	.0079	.44
No. 16	.0508	.07	No. 33	.0070	.48
No. 17	.0452	.08	No. 34	.0063	.52
No. 18	.0403	.08	No. 35	.0056	.56
No. 19	.0358	.10	No. 36	.0050	.60
No. 20	.0319	.12	.....	.....	...

Brass and Commercial Bronze Wire in Coils

Brown & Sharpe's Gage

Extras Over Base Prices

Gages	Round per Lb.	Hexagon, Octagon, Square per Lb.	Half-Round, Oval per Lb.
Incl. 4 (.2043) and Larger.....	Base	$.02	$.04
Under 4 (.2043) Incl. 8 (.1285)...	$.00 1/2	.02 1/2	.04 1/2
Under 8 (.1285) Incl. 10 (.1019)...	.01	.03	.05
Under 10 (.1019) Incl. 11 (.0907)...	.02	.04	.06
Under 11 (.0907) Incl. 13 (.0720)...	.03	.06	.07
Under 13 (.0720) Incl. 15 (.0571)...	.04	.07 1/2	.08
Under 15 (.0571) Incl. 17 (.0453)...	.05	.08 1/2	.09
Under 17 (.0453) Incl. 19 (.0359)...	.06	.10	.10
Under 19 (.0359) Incl. 21 (.0285)...	.07	.11	.11
Under 21 (.0285) Incl. 23 (.0226)...	.08	.12	.12
Under 23 (.0226) Incl. 24 (.0201)...	.09	.13	.13
Under 24 (.0201) Incl. 25 (.0179)...	.10	.14	.14
Under 25 (.0179) Incl. 26 (.0159)...	.11	.15	.15
Under 26 (.0159) Incl. 27 (.0142)...	.12	...	.20
Under 27 (.0142) Incl. 28 (.0126)...	.13	...	.23
Under 28 (.0126) Incl. 29 (.0113)...	.14	...	.26
Under 29 (.0113) Incl. 30 (.0100)...	.15	...	.30
Under 30 (.0100) Incl. 31 (.0089)...	.16	...	.34
Under 31 (.0089) Incl. 32 (.0080)...	.17	...	.38
Under 32 (.0080) Incl. 33 (.0071)...	.19	...	...
Under 33 (.0071) Incl. 34 (.0063)...	.20	...	...
Under 34 (.0063) Incl. 35 (.0056)...	.24	...	...
Under 35 (.0056) Incl. 36 (.0050)...	.30	...	...
Under 36 (.0050) Incl. 37 (.0045)...	.36	...	...
Under 37 (.0045) Incl. 38 (.0040)...	.46	...	...
Under 38 (.0040) Incl. 39 (.0035)...	.70	...	...
Under 39 (.0035) Incl. 40 (.0031)...	.98	...	...
Under 40 (.0031) Incl. 41 (.0028)...	1.70	...	...
Under 41 (.0028) Incl. 42 (.0025)...	2.60	...	...
Under 42 (.0025) Incl. 43 (.0022)...	3.70	...	...
Under 43 (.0022) Incl. 44 (.0020)...	5.50	...	...

Special shaped wire other than listed above, prices upon application.

Wires of sizes smaller than No. 24 gage, special prices quoted upon application.

Bare Solid Copper Wire

American Wire Gage

Size A.W.G.	Diam. In.	Size A.W.G.	Diam. In.	Size A.W.G.	Diam. In.	Size A.W.G.	Diam. In.
*3/8"	.3750	3	.2294	.. **	.10400	19	.03589
*5/16"	.3125	4	.2043	11	.09074	20	.03196
*1/4"	.2500	5	.1819	12	.08081	21	.02846
0000	.4600	6	.1620	13	.07196	22	.02535
000	.4096	.. **	.1650	14	.06408	23	.02257
00	.3648	7	.1443	15	.05707	24	.02010
0	.3249	8 **	.1285	16	.05082	..	.....
1	.2893	9	.1144	17	.04526	..	.....
2	.2576	10	.1019	18	.04030	..	.....

*Diameter inches.

**Open wire telephone sizes.

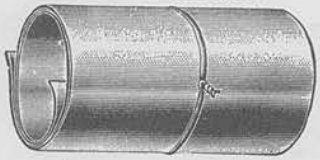
Coppered Steel Spring Wire

Size No.	Price per 100 Pounds	Size No.	Price per 100 Pounds	Size No.	Price per 100 Pounds
4	$9.50	9	$9.50	14	$11.00
5	9.50	10	10.00	15	11.50
6	9.50	11	10.75	16	12.00
7	9.50	12	10.50	17	12.75
8	9.50	13	10.75	18	13.50

Half Hard Sheet Brass

Width, 12 Inches—Length, 72 Inches

Sold in Full or Cut Sheets



B. & S. Gage	Thickness In.	Approx. Wt. Lbs. per Sq. Ft.	B. & S. Gage	Thickness In.	Approx. Wt. Lbs. per Sq. Ft.
1/2"	.500	22.04	13	.072	3.173
3/8"	.375	16.52	14	.064	2.825
5/16"	.312	13.81	15	.057	2.516
1/4"	.250	11.02	16	.051	2.238
3/16"	.187	8.261	17	.045	1.996
8	.128	5.662	18	.040	1.776
9	.114	5.041	19	.036	1.582
10	.102	4.490	20	.032	1.410
11	.090	3.997	22	.025	1.119
12	.081	3.560	..	....	.....

For thinner gages, see Shim Stock.

Width, 24 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

8	.128	5.662	14	.064	2.825
10	.102	4.490	16	.051	2.238
11	.090	3.997	18	.040	1.776
12	.081	3.560	20	.032	1.410

In Rolls 12 Inches Wide

Sold in Full or Cut Rolls

20	.032	1.410	26	.016	.700
22	.025	1.119	28	.012	.555
24	.020	.886	30	.010	.440

In Rolls 6 Inches Wide

Sold in Full or Cut Rolls

30	.010	.440	34	.006	.277
32	.008	.352	..	....	.....

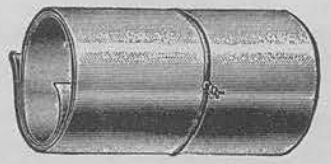
Variations from these weights must be expected in practice.

Prices upon application.

Soft Sheet Brass

Width, 12 Inches—Length, 72 Inches

Sold in Full or Cut Sheets



B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.	B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.
1/4"	.250	11.020	13	.072	3.173
3/16"	.187	8.262	14	.064	2.825
8	.128	5.662	15	.057	2.516
9	.114	5.041	16	.051	2.238
10	.102	4.490	17	.045	1.996
11	.091	3.997	18	.0403	1.776
12	.081	3.560	19	.036	1.582

In Rolls

Sold in Full or Cut Rolls 12 In. Wide

20	.032	1.410	26	.0159	.700
22	.025	1.119	28	.0126	.555
24	.0201	.885	30	.0100	.440

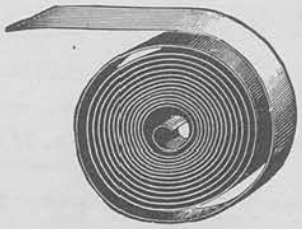
Variations from these weights must be expected in practice.

Prices upon application.

Hard and Soft Strip Brass

In Coils

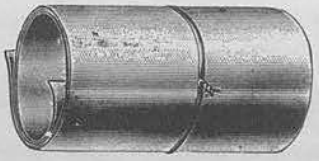
Sold in Full or Cut Coils



B. & S. Gage	Decimal In.	Width In.	Approx. Wt. Lbs. per Lineal Ft.
14	.064	1/2	.117
14	.064	3/4	.176
14	.064	1	.235
14	.064	1 1/2	.353
14	.064	2	.471
14	.064	3	.706
16	.051	1/2	.093
16	.051	3/4	.140
16	.051	1	.186
16	.051	1 1/2	.280
16	.051	2	.373
16	.051	3	.560
20	.032	1/2	.059
20	.032	3/4	.088
20	.032	1	.117
20	.032	1 1/2	.176
20	.032	2	.235
20	.032	3	.352

Prices upon application.

Hard Spring Sheet Phosphor Bronze



Width, 6 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.	B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.
11	.091	4.100	16	.051	2.302
12	.081	3.661	17	.045	2.050
13	.072	3.250	18	.040	1.826
14	.064	2.903	19	.036	1.625
15	.057	2.601	20	.032	1.448

In Rolls 6 Inches Wide

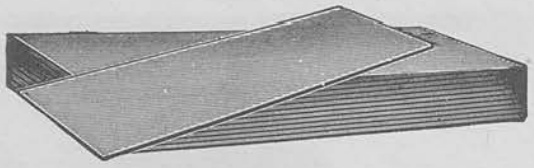
Sold in Full or Cut Rolls

21	.0284	1.302	30	.0100	.454
22	.0253	1.148	32	.0079	.360
24	.0201	.910	34	.0063	.282
26	.0159	.722	36	.0050	.227
28	.0126	.572	..	.....	....

Prices upon application.

2 S 4 Bright Sheet Aluminum

Half Hard



Width, 12 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

B. & S. Gage	Thickness In.	Approx. Wt. Lbs. per Sq. Ft.	B. & S. Gage	Thickness In.	Approx. Wt. Lbs. per Sq. Ft.
1/2"	.500	6.958	16	.051	.706
3/8"	.375	5.218	18	.040	.560
5/16"	.312	4.348	20	.032	.444
1/4"	.250	3.479	22	.025	.352
3/16"	.187	2.609	24	.020	.279
8	.128	1.812	26	.016	.222
11	.090	1.294	28	.012	.176
12	.080	1.123	30	.010	.141
14	.064	.891	..	....	....

Width, 24 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

*1/2"	.500	6.958	16	.051	.706
3/8"	.375	5.218	18	.040	.560
1/4"	.250	3.479	20	.032	.444
3/16"	.187	2.609	22	.025	.352
8	.128	1.812	24	.020	.279
11	.090	1.294	26	.016	.222
12	.080	1.123	28	.012	.176
14	.064	.891	..	....	....

*Sold in full sheets only. Size, 24x36 inches.

Width, 36 Inches—Length, 120 Inches

Sold in Full Sheets Only

8	.128	1.812	18	.040	.560
14	.064	.891	20	.032	.444
16	.051	.706	..	....	....

Width, 36 Inches—Length, 144 Inches

Sold in Full Sheets Only

16	.051	.706	..	....	....

2 S 8 Bright Sheet Aluminum

Three-Quarters Hard

Suitable for automobile body and airplane work.

Width, 42 Inches—Length, 120 Inches

Sold in Full Sheets Only

14	.064	.891	18	.040	.560
16	.051	.706	..	....	....

Width, 48 Inches—Length, 144 Inches

Sold in Full Sheets Only

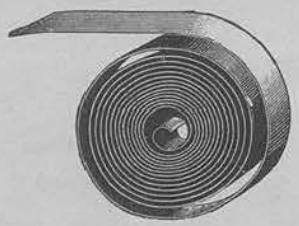
14	.064	.891	16	.051	.706

Variations from these weights must be expected in practice.

Prices upon application.

Cold Rolled Strip Copper

Sold In Full or Cut Coils

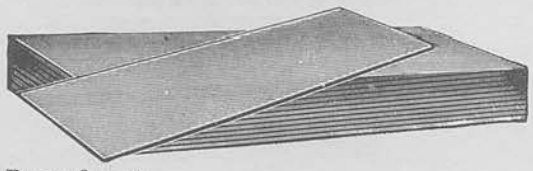


Size In.	Thickness In.	Wt. Lbs. per Lineal Ft.	Size In.	Thickness In.	Wt. Lbs. per Lineal Ft.
1/32x1	.0313	.120	1/16x1	.0625	.241
1/32x2	.0313	.241	1/16x2	.0625	.482
1/32x3	.0313	.361	1/16x3	.0625	.723

Prices upon application.

Hot Rolled Sheet Copper

Sold in Full Sheets Only



For roofing, etc.

Size In.	Thick. In.	Wt. Lbs. per Sq. Ft.	Size In.	Thick. In.	Wt. Lbs. per Sq. Ft.
20x 96x14 Oz.	.0189	7/8	28x 96x16 Oz.	.0216	1
24x 96x14 Oz.	.0189	7/8	*24x120x16 Oz.	.0216	1
26x 96x14 Oz.	.0189	7/8	30x 96x16 Oz.	.0216	1
28x 96x14 Oz.	.0189	7/8	*30x120x16 Oz.	.0216	1
30x 96x14 Oz.	.0189	7/8	36x 96x16 Oz.	.0216	1
36x 96x14 Oz.	.0189	7/8	*36x120x16 Oz.	.0216	1
20x 96x16 Oz.	.0216	1	*36x 96x18 Oz.	.0243	1 1/8
24x 96x16 Oz.	.0216	1	*36x 96x20 Oz.	.0270	1 1/4
26x 96x16 Oz.	.0216	1	*30x 96x20 Oz.	.0270	1 1/4

Cold Rolled Cornice Copper

Sold in Full Sheets Only

For cornice signs, sash doors, etc.

Size In.	Thick. In.	Wt. Lbs. per Sq. Ft.	Size In.	Thick. In.	Wt. Lbs. per Sq. Ft.
30x 96x12 Oz.	.0162	3/4	*30x120x16 Oz.	.0216	1
20x 96x14 Oz.	.0189	7/8	36x 96x16 Oz.	.0216	1
24x 96x14 Oz.	.0189	7/8	36x120x16 Oz.	.0216	1
28x 96x14 Oz.	.0189	7/8	*24x 96x18 Oz.	.0243	1 1/8
30x 96x14 Oz.	.0189	7/8	*30x 96x18 Oz.	.0243	1 1/8
36x 96x14 Oz.	.0189	7/8	*36x 96x18 Oz.	.0243	1 1/8
20x 96x16 Oz.	.0216	1	*30x 96x20 Oz.	.0270	1 1/4
20x120x16 Oz.	.0216	1	*36x 96x20 Oz.	.0270	1 1/4
24x 96x16 Oz.	.0216	1	*30x 96x24 Oz.	.0323	1 1/2
24x120x16 Oz.	.0216	1	*36x 96x24 Oz.	.0323	1 1/2
26x 96x16 Oz.	.0216	1	*30x 96x32 Oz.	.0431	2
28x 96x16 Oz.	.0216	1	*36x 96x32 Oz.	.0431	2
30x 96x16 Oz.	.0216	1	*36x 96x1/16	.0625	3

Cold Rolled Copper—Tinned One Side

Sold in Full Sheets Only

Size In.	Thick. In.	Wt. Lbs. per Sq. In.	Size In.	Thick. In.	Wt. Lbs. per Sq. Ft.
30x 96x14 Oz.	.0189	7/8	*36x 96x16 Oz.	.0216	1
30x 96x16 Oz.	.0216	1	.....	.....	...

Soft Sheet Copper

Width, 12 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.	B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.
1/4"	.250	11.58	12	.081	3.747
3/16"	.187	8.681	13	.072	3.338
6	.162	7.512	14	.064	2.972
7	.144	6.691	15	.057	2.648
8	.128	5.958	16	.051	2.355
9	.114	5.304	17	.045	2.100
10	.102	4.725	18	.040	1.869
11	.091	4.206	19	.036	1.665

Width, 24 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

11	.091	4.206	16	.051	2.355
12	.081	3.747	18	.040	1.869
13	.072	3.338	20	.032	1.484
14	.064	2.972	..	....	.....

In Rolls 12 Inches Wide

Sold in Full or Cut Rolls

20	.032	1.484	26	.016	.737
22	.025	1.178	28	.012	.584
24	.020	.932	30	.010	.463

In Rolls 6 Inches Wide

Sold in Full or Cut Rolls

30	.0100	.4637	34	.0063	.2921
32	.0080	.3709	36	.0050	.2318

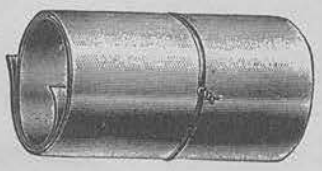
Variations from these weights must be expected in practice.

Prices upon Application

Approximate Weights of Sheet Aluminum Copper, Brass, Zinc and Steel

B.&S. Ga.No.	Thickness Inches	Weight Pounds, per Square Foot — Aluminum	Copper	Brass	Zinc	Steel
8	.1285	1.8099	5.9427	5.6810	.....	.....
	.1250	1.7607	.....	.....	4.6760	5.1096
9	.1144	1.6117	5.2906	5.0656	.....	.....
10	.1019	1.4353	4.7125	4.5121	.....	.....
	.1000	1.4086	.....	.....	3.7408	.....
11	.0907	1.2781	4.1946	4.0162	.....	.....
	.0900	1.2677	.....	.....	3.3667	.....
12	.0808	1.1382	3.7367	3.5778	.....	.....
	.0800	1.1268	.....	.....	2.9927	.....
	.0781	1.1001	.....	.....	.....	3.1926
13	.0720	1.0136	3.3297	3.1882	.....	.....
	.0700	.9860	.....	.....	2.6186	.....
14	.0641	.9026	2.9644	2.8383	.....	.....
	.0600	.8451	.....	.....	2.2445	.....
15	.0571	.8038	2.6407	2.5284	.....	.....
	.0550	.7747	.....	.....	2.0575	.....
16	.0508	.7158	2.3493	2.2494	.....	.....
	.0500	.7043	.....	.....	1.8704	2.044
17	.0453	.6375	2.0950	2.0059	.....	.....
	.0450	.6338	.....	.....	1.6834	.....
	.0438	.6169	.....	.....	.....	1.7905
18	.0403	.5676	1.8637	1.7845	.....	.....
	.0400	.5634	.....	.....	1.4963	.....
	.0360	.5071	.....	.....	1.3467	.....
19	.0359	.5055	1.6602	1.5897	.....	.....
20	.0320	.4501	1.4799	1.4169	1.1971	.....
21	.0285	.4008	1.3180	1.2619	.....	.....
	.0280	.3944	.....	.....	1.0474	.....
22	.0253	.3570	1.1700	1.1203	.....	.....
	.0240	.3380	.....	.....	.8978	.....
23	.0226	.3179	1.0452	1.0007	.....	.....
24	.0201	.2831	.9296	.8901	.....	.....
	.0200	.2817	.....	.....	.7482	.....
25	.0179	.2521	.8278	.7926	.....	.....
26	.0159	.2245	.7353	.7059	.....	.....
27	.0142	.1999	.6567	.6283	.....	.....
28	.0126	.1780	.5827	.5597	.....	.....
29	.0113	.1585	.5226	.4986	.....	.....
30	.0100	.1412	.4625	.4441	.3741	.....

18% Grade A Temper Unpolished Sheet Nickel Silver



Width, 6 Inches—Length, 72 Inches

Sold in Full or Cut Sheets

B. & S. Gage	Decimal In.	Approx. Wt. Lbs. per Sq. Ft.
14	.064	2.917
16	.051	2.312
20	.032	1.456

In Rolls 6 Inches Wide

Sold in Full or Cut Rolls

24	.0201	.9146
26	.0159	.7235
30	.0100	4550

Prices upon application.

Seamless Brass and Copper Pipe

Standard Pipe Sizes

Regular

Std. Pipe Size Inches	Diameter, Inches Outside	Inside	Thickness Inches	Weight, per Foot Pounds Brass	Copper
1/8	.405	.281	.062	.246	.259
1/4	.540	.375	.083	.437	.460
3/8	.675	.494	.091	.612	.643
1/2	.840	.625	.108	.911	.957
3/4	1.050	.822	.114	1.240	1.300
1	1.315	1.062	.127	1.740	1.830
1 1/4	1.660	1.368	.146	2.560	2.690
1 1/2	1.900	1.600	.150	3.040	3.200
2	2.375	2.062	.157	4.020	4.230
2 1/2	2.875	2.500	.188	5.830	6.140
3	3.500	3.062	.219	8.310	8.750
3 1/2	4.000	3.500	.250	10.850	11.410
4	4.500	4.000	.250	12.290	12.940
4 1/2	5.000	4.500	.250	13.740	14.460
5	5.563	5.062	.250	15.400	16.210
6	6.625	6.125	.250	18.440	19.410
7	7.625	7.062	.282	23.920	25.170
8	8.625	8.000	.313	30.050	31.630
		Extra Heavy			
1/8	.405	.205	.100	.353	.371
1/4	.540	.294	.123	.593	.624
3/8	.675	.421	.127	.805	.847
1/2	.840	.542	.149	1.190	1.256
3/4	1.050	.736	.157	1.620	1.710
1	1.315	.951	.182	2.390	2.510
1 1/4	1.660	1.272	.194	3.300	3.460
1 1/2	1.900	1.494	.203	3.990	4.190
2	2.375	1.933	.221	5.510	5.790
2 1/2	2.875	2.315	.280	8.410	8.840
3	3.500	2.892	.304	11.240	11.820
3 1/2	4.000	3.358	.321	13.670	14.370
4	4.500	3.818	.341	16.410	17.250
4 1/2	5.000	4.250	.375	20.070	21.100
5	5.563	4.813	.375	22.520	23.690
6	6.625	5.750	.437	31.320	32.930
7	7.625	6.625	.500	41.230	43.340
8	8.625	7.625	.500	47.020	49.420

Cutting to Exact Length Under 1 Foot

List Extra per Piece Over Price of Pipe

1/8, 1/4 and 3/8 in.	1/2, 3/4 and 1 in.	1 1/4, 1 1/2 and 2 in.	2 1/2 in.	3 in.	3 1/2 in.	4 in.	4 1/2 in.	5 in. and lgr.
$.01 1/2	.03	.04 1/2	.07 1/2	.10	.12	.13	.15	.18

Cutting to exact lengths 1 foot to 20 feet, no charge.

Over 20 feet—random or exact lengths on sizes 1/8 to 4 in., no charge.

Exact lengths over 4 in. S.P.S. over 20 ft. long...per ft. $.10

Extras for Finishings

Nominal Sizes Inches	Per Lineal Foot — Tinning	Polishing	Nickel Plating	Chromium Plating	Per End Threading
1/8	$.04	$.05 1/2	$.07	$.12	$.09
1/4	.06	.05 1/2	.08 1/2	.13	.09
3/8	.07 1/2	.06	.09	.16	.09
1/2	.10	.06 1/2	.10	.18	.09
3/4	.10	.06 1/2	.10	.21	.09
1	.10	.07	.11	.25	.09
1 1/4	.12	.08 1/2	.13	.33	.12
1 1/2	.13	.08 1/2	.15	.49	.15
2	.18	.12	.17	.63	.21
2 1/2	.27	.12	.19	.72	.30
3	.37	.15	.27	.87	.45
3 1/2	.47	.18	.37	1.05	.60
4	.57	.21	.47	1.15	.60
4 1/2	.62	.24	.57	1.21	.75
5	.67	....	.66	....	.90
6	.72	....	.84	....	1.35

Stock lengths are all exactly 12 feet.

Seamless Drawn Brass Tubing

Weights, Pounds per Lineal Foot

Stub's or Birmingham Gage

O. D. of Tubes In.	Gage No. 4	5	6	7	8	9	10	11
	Thickness of Each No. in Decimal Parts of an Inch: .238	.220	.203	.180	.165	.148	.134	.120
	Fractions of an Inch: 15/64	....	13/64	3/16	11/64	9/64	....	1/8
1/4	....	....	....	....	....	....	....	.18
3/8	....	....	....	....	.40	.39	.37	.35
1/2	....	....	.70	.66	.64	.60	.57	.53
5/8	1.06	1.03	.99	.92	.88	.81	.76	.70
3/4	1.41	1.35	1.28	1.18	1.11	1.03	.95	.87
7/8	1.75	1.67	1.57	1.44	1.35	1.24	1.15	1.04
1	2.09	1.98	1.87	1.70	1.59	1.45	1.34	1.22
1 1/8	2.44	2.30	2.16	1.96	1.83	1.67	1.53	1.39
1 1/4	2.78	2.62	2.45	2.22	2.07	1.88	1.73	1.56
1 3/8	3.13	2.94	2.75	2.48	2.31	2.10	1.92	1.74
1 1/2	3.47	3.25	3.04	2.74	2.54	2.31	2.11	1.91
1 5/8	3.82	3.57	3.34	3.01	2.78	2.52	2.31	2.09
1 3/4	4.16	3.89	3.63	3.27	3.02	2.74	2.50	2.26
1 7/8	4.50	4.21	3.92	3.53	3.26	2.95	2.69	2.43
2	4.85	4.53	4.22	3.79	3.50	3.17	2.89	2.61
2 1/4	5.54	5.16	4.81	4.31	3.98	3.60	3.28	2.96
2 1/2	6.23	5.80	5.39	4.83	4.46	4.03	3.67	3.30
2 3/4	6.92	6.44	5.98	5.35	4.93	4.45	4.05	3.65
3	7.60	7.07	6.57	5.87	5.41	4.88	4.44	4.00
3 1/4	8.29	7.71	7.15	6.39	5.89	5.31	4.83	4.34
3 1/2	8.98	8.35	7.74	6.91	6.37	5.74	5.22	4.69
3 3/4	9.67	8.98	8.33	7.43	6.84	6.17	5.60	5.04
4	10.36	9.62	8.92	7.95	7.32	6.59	5.99	5.39
4 1/4	11.05	10.26	9.50	8.47	7.80	7.02	6.38	5.73
4 1/2	11.74	10.89	10.09	9.00	8.27	7.45	6.77	6.08
4 3/4	12.42	11.53	10.68	9.52	8.75	7.88	7.16	6.43
5	13.11	12.17	11.27	10.04	9.23	8.31	7.54	6.77
5 1/4	13.80	12.80	11.85	10.56	9.71	8.73	7.93	7.12
5 1/2	14.49	13.44	12.44	11.08	10.18	9.16	8.32	7.47
5 3/4	15.18	14.08	13.03	11.60	10.66	9.59	8.71	7.81
6	15.87	14.71	13.62	12.12	11.14	10.02	9.09	8.16

O.D. of Tubes In.	Gage No. 12	13	14	15	16	17	18	19
	Thickness of Each No. in Decimal Parts of an Inch: .109	.095	.083	.072	.065	.058	.049	.042
	Fractions of an Inch: ...	3/32	5/64	...	1/16	...	3/64	...
1/8	....	....	....	....	....	.045	.043	.040
1/4	.178	.170	.160	.148	.139	.129	.114	.101
3/8	.335	.308	.280	.252	.233	.213	.185	.162
1/2	.493	.445	.400	.357	.327	.297	.256	.223
5/8	.651	.583	.520	.461	.421	.380	.327	.283
3/4	.808	.720	.641	.565	.515	.464	.397	.344
7/8	.966	.857	.761	.669	.609	.548	.468	.405
1	1.12	.99	.88	.77	.70	.63	.54	.46
1 1/8	1.28	1.13	1.00	.87	.79	.71	.61	.52
1 1/4	1.44	1.27	1.12	.98	.89	.80	.68	.59
1 3/8	1.59	1.40	1.24	1.08	.98	.88	.75	.65
1 1/2	1.75	1.54	1.36	1.19	1.08	.96	.82	.71
1 5/8	1.91	1.68	1.48	1.29	1.17	1.05	.89	.77
1 3/4	2.07	1.82	1.60	1.39	1.26	1.13	.96	.83
1 7/8	2.22	1.95	1.72	1.50	1.36	1.22	1.03	.89
2	2.38	2.09	1.84	1.60	1.45	1.30	1.10	.95

To determine weight per foot of a tube of a given inside diameter, add to weights in above list the weights given below under corresponding gage numbers

Gage No.	Increase Pounds per Foot	Gage No.	Increase Pounds per Foot	Gage No.	Increase Pounds per Foot
3	1.55	9	.507	15	.120
4	1.31	10	.416	16	.098
5	1.12	11	.333	17	.078
6	.95	12	.275	18	.056
7	.75	13	.209	19	.0408
8	.63	14	.159		.....

Copper tubing, add 5 per cent to the weights of brass tubing.

Seamless Drawn Brass Tubing

Weight, Pounds per Lineal Foot

Stub's or Birmingham Gage

O.D. of Tubes In.	Gage No. 12	13	14	15	16	17	18	19
	Thickness of Each No. in Decimal Parts of an Inch: .109	.095	.083	.072	.065	.058	.049	.042
	Fractions of an Inch: ...	3/32	5/64	...	1/16	...	3/64	...
2 1/4	2.70	2.37	2.08	1.81	1.64	1.47	1.25	1.07
2 1/2	3.01	2.64	2.32	2.02	1.83	1.64	1.39	1.19
2 3/4	3.33	2.92	2.56	2.23	2.02	1.80	1.53	1.31
3	3.64	3.19	2.80	2.44	2.21	1.97	1.67	1.44
3 1/4	3.96	3.47	3.04	2.65	2.39	2.14	1.81	1.56
3 1/2	4.27	3.74	3.28	2.85	2.58	2.31	1.95	1.68
3 3/4	4.59	4.02	3.52	3.06	2.77	2.48	2.10	1.80
4	4.91	4.29	3.76	3.27	2.96	2.64	2.24	1.92
4 1/4	5.22	4.57	4.00	3.48	3.15	2.81	2.38	2.04
4 1/2	5.54	4.84	4.24	3.69	3.33	2.98	2.52	2.16
4 3/4	5.85	5.12	4.48	3.90	3.52	3.15	2.66	2.29
5	6.17	5.39	4.72	4.10	3.71	3.31	2.81	2.41
5 1/4	6.48	5.66	4.96	4.31	3.90	3.48	2.95	2.53
5 1/2	6.80	5.94	5.20	4.52	4.09	3.65	3.09	2.65
5 3/4	7.11	6.21	5.44	4.73	4.27	3.82	3.23	2.77
6	7.43	6.49	5.68	4.94	4.46	3.99	3.37	2.89

O.D. of Tubes Inches	Gage No. 20	21	22	23	24	25	26	27
	Thickness of Each No. in Decimal Parts of an Inch: .035	.032	.028	.025	.022	.020	.018	.016
	Fractions of an Inch:	1/32	.....	.....	.....	.....	.....	1/64
1/8	.036	.034	.031	.029	.026	.024	.022	.020
1/4	.087	.081	.072	.065	.058	.053	.048	.043
3/8	.138	.127	.112	.101	.090	.082	.074	.066
1/2	.188	.173	.153	.137	.122	.111	.100	.090
5/8	.239	.220	.193	.174	.153	.140	.126	.113
3/4	.290	.266	.234	.210	.185	.169	.152	.136
7/8	.340	.312	.274	.246	.217	.198	.178	.159
1	.391	.358	.315	.282	.249	.227	.204	.182
1 1/8	.441	.404	.355	.318	.281	.256	.231	.205
1 1/4	.492	.451	.396	.354	.313	.285	.257	.228
1 3/8	.543	.497	.436	.390	.344	.313	.282	.252
1 1/2	.593	.544	.477	.427	.376	.342	.309	.275
1 5/8	.644	.590	.517	.463	.408	.372	.335	....
1 3/4	.694	.636	.558	.499	.440	.400	.361	....
1 7/8	.745	.682	.598	.535	.472	.429	.387	....
2	.796	.729	.639	.571	.503	.458	.413	....
2 1/4	.897	.821	.720	.644	.567	.516	....	....
2 1/2	.998	.914	.801	.716	.631	.574	....	....
2 3/4	1.099	1.006	.882	.788	....	....	....	....
3	1.201	1.099	.963	.861	....	....	....	....
3 1/4	1.302	1.191	1.044	.933	....	....	....	....
3 1/2	1.403	1.284	1.125	1.005	....	....	....	....
3 3/4	1.504	1.377	1.206	1.077	....	....	....	....
4	1.606	1.469	1.287	.....	.....	....	....	....
4 1/4	1.707	1.562	1.368	.....	....	....	....	....
4 1/2	1.808	1.654	1.449	.....	....	....	....	....
4 3/4	1.909	1.747	.....	.....	....	....	....	....
5	2.011	1.839	.....	.....	....	....	....	....
5 1/4	2.112	1.932	.....	.....	....	....	....	....
5 1/2	2.213	2.024	.....	.....	....	....	....	....
5 3/4	2.314	.....	.....	.....	....	....	....	....
6	2.416	.....	.....	.....	....	....	....	....

To determine weight per foot of a tube of a given inside diameter, add to weights in above list the weights given below under corresponding gage numbers.

Gage No.	Increase Pounds per Foot	Gage No.	Increase Pounds per Foot	Gage No.	Increase Pounds per Foot
12	.2743	18	.0554	24	.0112
13	.2084	19	.0407	25	.0092
14	.1590	20	.0283	26	.0075
15	.1197	21	.0236	27	.0059
16	.0975	22	.0181	..	.....
17	.0777	23	.0144	..	.....

Copper tubing, add 5 per cent to the weights of brass tubing.

Round Seamless Tubing

Copper, Brass, Red-Brass, Commercial Bronze, Admiralty, Roman Bronze, Naval Brass

Extra Per Pound Over Base Price

Outside Diameter in Inches	Thickness of Wall, Stubs' Gauge and in Inches																				
	6 and Hev. Inc. 203 and Hev.	7 Under .203 to .180 Inc.	8 Under .180 to .165 Inc.	9 Under .165 to .148 Inc.	10 Under .148 to .134 Inc.	11 Under .134 to .120 Inc.	12 Under .120 to .109 Inc.	13 Under .109 to .095 Inc.	14 Under .095 to .083 Inc.	15 Under .083 to .072 Inc.	16 Under .072 to .065 Inc.	17 Under .065 to .058 Inc.	18 Under .058 to .049 Inc.	19 Under .049 to .042 Inc.	20 Under .042 to .035 Inc.	21 Under .035 to .032 Inc.	22 Under .032 to .028 Inc.	23 Under .028 to .035 Inc.	24 Under .025 to .022 Inc.	25 Under .022 to .020 Inc.	26 Under .020 to .018 Inc.
Inc. 1/8 to 5/32	....	....	....	....	....	....	....	....	....	....	....	....	$.56	$.50	$.46	$.48	$.52	$.56	$.62	$.68	$.76
Inc. 5/32 to 3/16	....	....	....	....	....	....	....	....	....	....	$.50	$.46	.36	.32	.34	.36	.38	.42	.46	.52	.58
Inc. 3/16 to 7/32	....	....	....	....	....	....	....	....	....	....	.24	.23	.19	.20	.21	.23	.27	.31	.34	.38	.43
Inc. 7/32 to 1/4	....	....	....	....	....	....	....	....	....	....	.20	.20	.18	.19	.20	.22	.25	.28	.31	.34	.38
Inc. 1/4 to 9/32	....	....	....	....	....	....	....	....	....	....	.16	.16	.15	.16	.17	.18	.20	.22	.25	.28	.33
Inc. 9/32 to 5/16	....	....	....	....	....	....	....	....	....	....	.15	.15	.14	.15	.16	.18	.20	.22	.25	.28	.32
Inc. 5/16 to 3/8	....	....	....	....	....	....	....	....	....	....	.14	.14	.13	.14	.15	.16	.18	.20	.22	.24	.28
Inc. 3/8 to 1/2	....	....	....	....	....	....	....	....	$.08	$.09	.10	.11	.11	.12	.13	.14	.16	.18	.20	.22	.26
Inc. 1/2 to 5/8	....	....	....	....	....	$.08	$.07	$.07	.07	.08	.09	.09	.10	.10	.11	.11	.12	.13	.15	.18	.20
Inc. 5/8 to 3/4	....	....	....	....	.06	.06	.06	.06	.06	.06	.07	.07	.08	.09	.10	.10	.11	.12	.14	.17	.19
Inc. 3/4 to 7/8	....	....	$.08	$.07	$.05	.04	.04	.04	.04	.04	.04	.05	.06	.07	.08	.08	.09	.10	.12	.14	.16
Inc. 7/8 to 1	....	$.08	.06	.05	.04	.04	.04	.04	.04	.04	.04	.05	.05	.06	.07	.07	.08	.10	.11	.13	.15
Inc. 1 to 1 1/4	....	.05	.04	.03	.03	.03	.03	.03	.03	.03	.03	.04	.05	.06	.07	.07	.08	.09	.10	.12	.14
Inc. 1 1/4 to 1 1/2	$.02	.01	.01	.01	.01	.01	.01	.01	.02	.03	.03	.04	.05	.05	.06	.07	.08	.10	.14	.16	.20
Inc. 1 1/2 to 1 3/4	.01	Base	Base	Base	Base	Base	Base	.01	.02	.03	.03	.04	.05	.05	.06	.07	.09	.11	.17	.23	.29
Inc. 1 3/4 to 2	.01	Base	Base	Base	Base	Base	Base	.01	.02	.03	.03	.04	.05	.05	.06	.08	.10	.12	.18	.30	.42
Inc. 2 to 2 1/4	.01	Base	Base	Base	Base	Base	Base	.01	.02	.03	.04	.05	.06	.06	.07	.09	.11	.15	.21	.35	.56
Inc. 2 1/4 to 2 1/2	Base	Base	Base	Base	Base	Base	Base	.01	.02	.03	.04	.05	.06	.07	.08	.10	.13	.18	.25	.42	.63
Inc. 2 1/2 to 2 3/4	Base	Base	Base	Base	Base	Base	.01	.01	.02	.04	.05	.06	.07	.08	.09	.16	.24	.32	.40	....	....
Inc. 2 3/4 to 3	Base	Base	Base	Base	Base	Base	.01	.01	.02	.04	.05	.06	.07	.09	.11	.20	.30	.38	.46	....	....
Inc. 3 to 3 1/4	Base	Base	Base	Base	Base	Base	.01	.01	.02	.04	.05	.06	.08	.10	.13	.24	.36	.44	....	....	....
Inc. 3 1/4 to 3 1/2	Base	Base	Base	Base	.01	.01	.01	.01	.02	.04	.05	.07	.09	.11	.15	.28	.42	.50	....	....	....
Inc. 3 1/2 to 3 3/4	Base	Base	Base	Base	.01	.01	.02	.03	.04	.05	.06	.08	.10	.13	.17	.32	.48	.64	....	....	....
Inc. 3 3/4 to 4	Base	Base	Base	Base	.01	.02	.02	.03	.04	.06	.07	.09	.12	.15	.20	.36	.52	.65	....	....	....
Inc. 4 to 4 1/4	Base	Base	Base	Base	.02	.02	.03	.04	.05	.07	.08	.11	.14	.17	.23	.42	.58	.70	....	....	....
Inc. 4 1/4 to 4 1/2	.01	.01	.01	.01	.02	.02	.03	.04	.05	.07	.08	.12	.16	.20	.26	.50	.68	....	....	....	....
Inc. 4 1/2 to 4 3/4	.01	.01	.01	.01	.02	.03	.04	.05	.06	.08	.10	.14	.18	.23	.29	.37	.45	....	....	....	....
Inc. 4 3/4 to 5	.02	.02	.02	.02	.02	.03	.04	.05	.06	.08	.12	.16	.20	.26	.32	.40	.48	....	....	....	....
Inc. 5 to 5 1/4	.04	.04	.04	.04	.04	.05	.06	.07	.08	.10	.14	.18	.23	.29	.35	.43	.51	....	....	....	....
Inc. 5 1/4 to 5 1/2	.04	.04	.04	.04	.04	.05	.06	.07	.08	.10	.14	.20	.26	.33	.40	.48	.56	....	....	....	....
Inc. 5 1/2 to 5 3/4	.06	.06	.06	.06	.06	.06	.07	.08	.09	.11	.16	.22	.29	.37	.45	.53	.69	....	....	....	....
Inc. 5 3/4 to 6	.06	.06	.06	.06	.06	.06	.07	.08	.09	.11	.17	.24	.32	.41	.49	.57	....	....	....	....	....
Inc. 6 to 6 1/4	.07	.07	.07	.07	.07	.08	.08	.10	.11	.13	.19	.26	.35	.45	.53	.61	....	....	....	....	....
Inc. 6 1/4 to 6 1/2	.07	.07	.07	.07	.07	.08	.09	.10	.11	.13	.20	.29	.38	.46	....	....	....	....	....	....	....
Inc. 6 1/2 to 6 3/4	.07	.07	.07	.07	.07	.08	.09	.11	.12	.15	.22	.31	.41	.49	....	....	....	....	....	....	....
Inc. 6 3/4 to 7	.07	.07	.07	.07	.07	.08	.09	.11	.12	.17	.24	.33	.44	....	....	....	....	....	....	....	....
Inc. 7 to 7 1/4	.08	.08	.08	.08	.08	.09	.09	.11	.12	.17	.24	.33	.46	....	....	....	....	....	....	....	....
Inc. 7 1/4 to 7 1/2	.09	.09	.09	.10	.11	.11	.12	.13	.15	.20	.27	.36	....	....	....	....	....	....	....	....	....
Inc. 7 1/2 to 7 3/4	.09	.09	.09	.10	.11	.11	.12	.13	.15	.20	.27	.36	....	....	....	....	....	....	....	....	....
Inc. 7 3/4 to 8	.09	.09	.09	.10	.11	.11	.12	.13	.15	.20	.27	.38	....	....	....	....	....	....	....	....	....
Inc. 8 to 8 1/2	.11	.11	.11	.11	.11	.11	.12	.14	.15	.21	.28	....	....	....	....	....	....	....	....	....	....
Inc. 8 1/2 to 9	.11	.11	.11	.11	.12	.12	.13	.14	.15	.21	.28	....	....	....	....	....	....	....	....	....	....
Inc. 9 to 9 1/2	.11	.11	.11	.12	.14	.15	.15	.16	.17	.23	.30	....	....	....	....	....	....	....	....	....	....
Inc. 9 1/2 to 10	.15	.15	.15	.15	.15	.15	.16	.18	.20	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 10 to 10 1/2	.18	.18	.18	.18	.18	.18	.19	.21	.24	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 10 1/2 to 11	.20	.20	.20	.22	.22	.22	.24	.26	.29	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 11 to 11 1/2	.21	.21	.21	.23	.23	.23	.25	.27	.30	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 11 1/2 to 12	.22	.22	.22	.24	.24	.24	.26	.28	.31	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 12 to 12 1/2	.23	.23	.23	.25	.25	.25	.27	.29	.32	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 12 1/2 to 13	.24	.24	.24	.26	.26	.26	.28	.30	.33	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 13 to 14	.25	.25	.25	.27	.27	.27	.29	.31	.34	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 14 to 15	.26	.26	.26	.28	.28	.28	.30	.32	.35	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 15 to 16	.27	.27	.27	.29	.29	.29	.31	.33	.36	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 16 to 17	.28	.28	.28	.30	.30	.30	.32	.34	.37	....	....	....	....	....	....	....	....	....	....	....	....
Inc. 17 and Larger	.29	.29	.29	.31	.31	.31	.33	.35	.38	....	....	....	....	....	....	....	....	....	....	....	....

Shapes other than round, prices upon application.

Cutting to Uniform Specific Lengths

Straight Lengths

Net Extras—Over Extras for Size, Shape and Gauge, Cents per Pound, Not Including Charges for Burring and Chamfering or Angle and Precision Cutting

Lengths	Weight per Foot in Pounds: Inc. .250 and Heavier	Inc. .050 to .250	Inc. .020 to .050	Less than .020
Inc. 1/4 In. to 3/8 In.	$.15	$.18	$.60	$.96
Inc. 3/8 In. to 1/2 In.	.10	.12	.40	.64
Inc. 1/2 In. to 1 In.	.05	.06	.20	.32
Inc. 1 In. to 2 In.	.04	.05	.18	.28

Lengths	Weight per Foot in Pounds: Inc. .250 and Heavier	Inc. .050 to .250	Inc. .020 to .050	Less than .020
Inc. 2 In. to 4 In.	$.03	.$04	$.16	$.24
Inc. 4 In. to 6 In.	.02	.03	.14	.20
Inc. 6 In. to 12 In.	.01	.02	.10	.14
Inc. 1 Ft. to 20 Ft. Inc.	.00¼	.00½	.01	.02

Random Straight Lengths

Random straight lengths including 1 foot to 20 feet inclusive no extra charge.
Longer than 20 feet an extra charge will be made.

Useful Information

Avoirdupois Weight

DRACHMS.
16 = 1 oz. = 437.5 grains troy.
256 = 16 = 1 lb. = 1.2153 lbs. troy.
6,400 = 400 = 25 = 1 quarter.
25,600 = 1,600 = 100 = 4 = 1 cwt.
512,000 = 32,000 = 2,000 = 80 = 20 = 1 ton.

Troy Weight

GRAINS.
24 = 1 dwt.
480 = 20 = 1 oz.
5,760 = 240 = 12 = 1 lb. = 22.816 cubic inches of distilled water at 62° Fahr.

Dry Measure

PINTS. = 33.6 cubic inches.
2 = 1 quart = 67.2 cubic inches.
8 = 4 = 1 gallon = 268.8 cubic inches.
16 = 8 = 2 = 1 peck = 537.6 cubic inches.
64 = 32 = 8 = 4 = 1 bushel.

NOTE.—The standard U. S. bushel is the Winchester bushel, which is in cylinder form, 18½ inches in diameter and 8 inches deep, and contains 2,150.42 cubic inches.

Square Measure

INCHES.
144 = 1 foot.
1,296 = 9 = 1 yard.
39,204 = 272.25 = 30.25 = 1 perch.
1,568,160 = 10,890 = 1,210 = 40 = 1 rood.
6,272,640 = 43,580 = 4,840 = 160 = 4 = 1 acre.

An acre is 69.5701 yards square; or, 208.710321 feet square.
A township is 6 miles square = 36 sections.
A section is 1 mile " = 640 acres.
¾ " is ½ " " = 160 "
⅙ " is ¼ " " = 40 "

A span is the distance that can be reached between the end of the middle finger and the end of the thumb. Among sailors 8 spans are equal to 1 thumb.

A geographic mile is 1/21600 of the distance around the center of the earth.

A square mile of land is called a section.

A Gunter's chain, used by land surveyors, is 4 rods, or 66 feet long, and conists of 100 links. 7.92 inches make a link.

Canal and railroad engineers use an engineer's chain, which consists of 100 links, each 1 foot long.

Paper Measure

Quire of paper........................24 sheets.
Ream of paper........................20 quires or 480 sheets
Bundle........................2 reams.
Bale........................5 bundles.
Roll of parchment........................60 skins.

Sheet of paper folded into—

2 leaves is termed folio size.		16 leaves is termed	16mo.
4 " "	4to or quarto.	18 " "	18mo.
8 " "	8vo. or octavo.	24 " "	24mo.
12 " "	12mo. or duodecimo.	48 " "	48mo.

Apothecaries' Weight

GRAINS.
20 = 1 scruple or ℈. 480 = 24 = 8 = 1 oz. or ℥.
60 = 3 = 1 drachm or ʒ. 5,760 = 288 = 96 = 12 = 1 lb.

Apothecaries' Measure

60 minims...... = 1 fluid-drachm. 16 fluid-ounces......... = 1 pint.
8 fluid-drachms. = 1 fluid-ounce. 8 pints.............. = 1 gallon.

Forty-five drops, or a common teaspoonful, make about 1 fluid-drachm; 2 tablespoonfuls, about 1 fluid-ounce; a wineglassful, about 1½ fluid-ounces; and a teacupful about 4 fluid-ounces.

Liquid or Wine Measure

GILLS = 7.2187 cubic inches.
4 = 1 pint = 28.875 cubic inches.
8 = 2 = 1 quart = 57.75 cubic inches.
32 = 8 = 4 = 1 gallon.
2,016 = 404 = 252 = 63 = 1 hogshead.
4,032 = 1,008 = 504 = 126 = 2 = 1 pipe.
8,064 = 2,016 = 1,008 = 252 = 4 = 2 = 1 ton.

NOTE.—The standard unit and liquid measure adopted by the U. S. government is the Winchester wine gallon, which contains 231 cubic inches, and holds 8.339 pounds, avoirdupois, of distilled water, at its maximum density weighed in air, the barometer being at 30 inches.

The imperial gallon, adopted by Great Britain, contains 277.274 cubic inches, and equals 1.20032 U. S. gallons.

The following cylinders contain some of these measures very closely:

Gill,	diameter,	1¾	inches;	height,	3 inches.
Pint,	"	3½	"	"	3 "
Quart,	"	3½	"	"	6 "
Gallon,	"	7	"	"	6 "
8 gallon	"	14	"	"	12 "
10 "	"	14	-	"	15 "

Weight of Water

1 cubic inch........................ = .03617 pounds.
12 cubic inches........................ = .4340 "
1 cubic foot........................ = 7.48052 U. S. gallons
1 U. S. gallon........................ = 8.355 pounds.
35.84 cubic feet........................ = .2240 "
2,240 pounds........................ = 268.8 U. S. gallons

Liquid Weight

Lbs. Avoirdupois
1 gallon distilled water........................10
1 " sea water........................10.32
1 " proof spirits........................9.08

Oils

	Lbs. Avoirdupois		Lbs. Avoirdupois
1 gallon sperm.............	7½	1 gallon paraffine, 28° gravity..	7⅜
1 " whale.............	7½	1 " " 25° " ..	7½
1 " lard.............	7½	1 " reduced Franklin.....	7¼
1 " tallow.............	7½	1 " castor.............	8
1 " neat's-foot..........	7½	1 " kerosene..........	6½

Useful Information

Weights and Measures

Long Measure

12 inches	=1 foot
3 feet	=1 yard
1760 yards or 5280 feet	=1 mile
1000 mils	=1 inch
16½ feet or 5½ yards	=1*rod

*Sometimes called pole or perch.

Square Measure

30¼ square yards	=1 square rod
160 square rods	=1 acre
640 acres	=1 square mile

Liquid Measure

4 gills	=1 pint
2 pints	=1 quart
4 quarts	=1 gallon
1 U. S. gallon	=231 cubic inches
1 British Imperial Gallon	277.274 cubic inches= 1.2 U. S. gallon
7.48 U. S. gallons	=1 cubic foot

Dry Measure

2 pints	=1 quart
8 quarts	=1 peck
4 pecks	=1 bushel
1 Standard U. S. bushel	=2150.42 cubic inches= 1.2445 cubic feet
1 British Imperial bushel	=2218.19 cubic inches= 1.2837 cubic feet

Board Measure

One foot board measure is a piece of wood 12 inches square by 1 inch thick, or 144 cubic inches. 1 cubic foot therefore equals 12 feet board measure.

Shipping Measure

Register ton is used to measure internal capacity of ship. 100 cubic feet = 1 register ton.

Shipping ton, for measurement of cargo:

40 cubic feet = { 1 U. S. shipping ton; 32.143 U. S. bushels; 31.16 Imp. bushels }

42 cubic feet = { 1 British shipping ton; 33.75 U. S. bushels; 33.719 Imp. bushels }

Avoirdupois Weight

16 drachms or 437.5 grains	1 ounce (oz.)
16 ounces or 7000 grains	1 pound (lb.)
2000 pounds	1 net or short ton
2240 pounds	1 gross or long ton
2204.6 pounds	1 metric ton

Specific Gravity

The specific gravity of a substance is its weight as compared with the weight of an equal bulk of pure water.

For making specific gravity determinations the temperature of the water is usually taken at 62°F. when 1 cubic foot of water weighs 62.355 pounds. Water is at its greatest density at 39.2°F. or 4° Centigrade.

Temperature

The following equation will be found convenient for transforming temperature from one system to another:

Let F = degrees Fahrenheit; C = degrees Centigrade; R = degrees Reamur.

$$\frac{F-32}{180}=\frac{C}{100}=\frac{R}{80}$$